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Forest Statistics for South Florida 1970



Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in South Florida. The survey was started in February 1970 and completed in March 1970. Findings of the three previous surveys, completed in 1936, 1949, and 1959, provide the basis for measuring changes that have occurred and trends that have developed over the past 34 years. However, in this report, the primary emphasis is on the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of May 22, 1928, is a continuing nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The general objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and to ascertain rates of forest growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 10-county area covered by this report is one of four Survey units in Florida. Similar reports, USDA Forest Service Resource Bulletins SE-14 and SE-15, have been issued for Northwest and Northeast Florida, and a report for Central Florida is planned for later this year. When completed, this survey will provide updated statistics on the timber resource for all of Florida.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Division of Forestry, Florida Department of Agriculture and Consumer Services, in the collection of the field data.

Joe P. McClure, Project Leader of the Forest Survey in the Southeast, organized and coordinated the various phases of the Survey. Noel D. Cost was in charge of the data collection. William H. B. Haines was in charge of the computations. Richard L. Welch was responsible for compiling the timber removal and mortality information. Herbert A. Knight was in charge of the analysis and reporting.

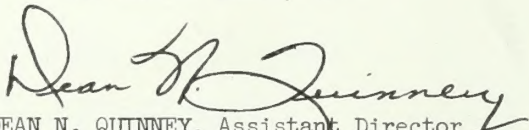
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Forest Statistics

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D. Forest Statistics for South Florida, 1970. Southeast. Forest Exp. Sta., USDA Forest Serv. Resource Bull. SE-16, 35 pp.

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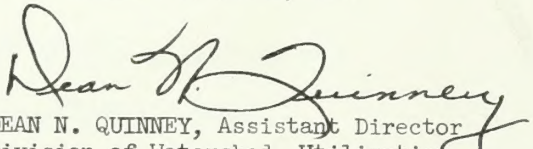
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HIGHLIGHTS

The unique physiographic features and rapidly changing land use patterns in South Florida present Forest Survey with a most difficult sampling problem in its attempt to measure periodically the timber resource there. The statistics presented in this report are the best available estimates; however, it is only fair to state at the outset that the statistical reliability of many of the data is extremely weak. Because timber production in this 10-county area does not command the strong economic position that it does in other areas of the Southeast, the benefits of greater precision do not justify the additional expenditures required to accurately sample these unique forest conditions.

Although this latest Forest Survey shows 2.2 million acres, or 28 percent, of the land in South Florida as forest, 1.5 million acres are classified as unproductive or noncommercial forest land. This 1.5-million figure includes approximately 441,400 acres of marginal forest land that were classified as commercial forest in the 1959 survey. An additional 511,400 acres of land classified as nonstocked forest in 1959 were reclassified as rangeland. These reclassifications, together with a real loss of almost 229,000 acres of commercial forest diverted to other land uses, leave only 727,500 acres classified as commercial forest, contrasted with 1.9 million acres in 1959.

The following conclusions were reached from an analysis of the principal findings of the Forest Survey:

Since 1959 in South Florida--

- area of commercial forest land has declined by 206,000 acres, or 22 percent, excluding reclassifications. Some 229,000 acres were diverted from commercial forest to other land uses while only 23,000 acres of new forest were added. About 58 percent of the diversion was to urban development and the remaining 42 percent to citrus groves, other cropland, and pasture. The new estimate of commercial forest area is 727,500 acres.
- average stand density of all live trees 5.0 inches d.b.h. and larger has increased from 29 to 36 square feet of basal area per acre. In spite of this buildup in average stand density, however, two out of every three acres of commercial forest are poorly stocked with growing-stock trees. About one out of every five trees 5.0 inches d.b.h. and larger does not qualify as growing stock because of poor form, roughness, or internal rot.
- there has been no significant change in the total volume of growing-stock timber, although average volume per acre has increased from 368 to 474 cubic feet. This tends to confirm that there is very

little timber volume on the reclassified areas. Volume of growing stock totals 345 million cubic feet, with cypress and slash pine the predominant species. Altogether, the hardwoods make up less than 10 percent of the volume of growing stock. Volume of sawtimber totals 964 million board feet, with essentially the same species composition as that of total growing stock. Three-fourths of this board-foot volume is in small sawtimber, trees less than 15.0 inches d.b.h.

- timber removals have about been in balance with net growth. In 1969, removals of growing stock totaled an estimated 6.5 million cubic feet and net growth totaled about 6.8 million cubic feet. Removals and net growth of sawtimber totaled 18.5 and 24.4 million board feet, respectively. Over the remeasurement period, almost 80 percent of the removals were the result of land clearing and only about 20 percent were the result of commercial logging.
- mortality of growing stock has reduced gross growth by as much as 50 percent. In fact, the survey shows in 1969 that mortality of hardwood was such that no net growth resulted whatsoever. Mortality of all growing stock in 1969 totaled an estimated 7.5 million cubic feet. Almost two-thirds of this loss is attributed to fire and the remainder is attributed to insects, weather, and suppression.
- the annual harvest of pulpwood has averaged about 37,000 cords, according to the annual pulpwood production studies. Over this period, the pulpwood harvest has ranged from a low of 19,000 cords in 1963, to a high of 58,000 cords in 1965. Some of this pulpwood harvest came from nongrowing-stock sources.

This latest Forest Survey also shows that--

- almost 95 percent, 688,100 acres, of the commercial forest land in South Florida is privately owned. The State owns about two-thirds of the 39,400 acres of publicly owned commercial forest. The two largest individual public holdings are the J. W. Corbett Wildlife Management Area in Palm Beach County and the Big Cypress Indian Reservation in Hendry County.
- tree planting has occurred on less than 5 percent of the commercial forest land. Most of the estimated 32,000 acres which have been planted are located in Glades County.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Estimates of forest and nonforest areas were based on the ground classification of 2,569 sample clusters systematically distributed within the 10-county area. At each of the sample clusters, 16 points were classified as to land use. Because of the unique and complex land-use patterns which exist in this Survey Unit, photo classifications and direct aerial observation normally used in the area sample were not attempted. The area estimates and land-use separations, therefore, were based entirely upon the ground classifications.
2. Approximately 511,400 acres of land classified as nonstocked forest land in the 1959 survey were reclassified as rangeland. Approximately 441,400 acres of marginal forest land classified as commercial forest in the 1959 survey were reclassified as unproductive forest. These steps were taken in an attempt to provide a more realistic measure of the timber resource in this 10-county area.
3. Estimates of timber volume and forest classifications were based on measurements recorded at 222 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots systematically spaced on an acre were measured at each of these sample locations using a basal area factor of 37.5 square feet per acre. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.
4. Existing volume-prediction equations were used to compute the volumes of individual tally trees. These volume equations were developed from measurements on standing trees in northern Florida and other areas of the Southeast. A mirror caliper and sectional aluminum poles were used to obtain the measurements. Felled trees were measured at active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 231 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors:

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	4.06
Per billion cubic feet of growing stock - - - - -	6.06
Per billion cubic feet of net annual growth - - - - -	0.83
Per billion cubic feet of annual removals - - - - -	1.79

Sampling errors for county and unit totals,^{1/} in terms of one standard error

County	:	:	Cubic-foot volume of growing stock		
	: Commercial	: forest area	: Inventory	: Growth	: Removals
- - - - - <u>Sampling error</u> ^{2/} - - - - -					
Broward	45.48	(3/)	(3/)	(3/)	
Charlotte	20.41	27.32	31.17	70.14	
Collier	8.88	15.90	14.48	53.16	
Dade	29.58	80.31	96.24	48.62	
Glades	14.35	33.55	33.63	75.69	
Hendry	10.05	21.98	18.59	62.91	
Lee	11.41	45.37	30.47	(3/)	
Martin	17.00	33.80	38.97	42.06	
Monroe	74.14	(3/)	(3/)	(3/)	
Palm Beach	13.38	34.74	37.29	38.53	
Unit total	4.77	10.31	9.87	23.14	

^{1/} Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{\text{Volume or area total in question}}}$$

Where: e = Sampling error of the volume or area total in question.

SE = Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

^{3/} Undefined.

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mts.), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past two years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly-owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material, and (b) all live trees of non-commercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 inch to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mt., sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ^{1/}
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

^{1/} Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
6	64.1	61.0	68.2	60.0	60.0
8	72.3	68.1	76.0	68.4	68.4
10	77.5	73.1	81.4	73.4	73.4
12	81.9	76.7	85.2	76.4	76.4
14	83.9	79.4	88.2	78.4	78.4
16	86.2	81.6	90.4	79.8	79.8
18	88.2	83.3	92.3	80.8	80.8
20	89.6	84.8	93.8	81.5	81.5
22	87.9	86.0	95.1	82.1	82.1
24+	92.1	--	97.8	82.9	82.9
Average	76.3	71.1	80.8	68.3	73.2

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in South Florida was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1970

County	All land ^{1/}	Forest land				Nonforest land ^{2/}
		Total	Commercial forest	Unproductive forest	Productive reserved	
----- <u>Thousand acres</u> -----						
Broward	780.8	145.2	4.5	140.4	0.3	635.6
Charlotte	473.0	55.1	38.0	17.1	--	417.9
Collier	1,322.7	817.5	220.8	594.9	1.8	505.2
Dade	1,267.1	313.8	13.5	259.6	40.7	953.3
Glades	507.9	78.6	78.6	--	--	429.3
Hendry	744.7	139.8	117.8	21.9	0.1	604.9
Lee	531.7	181.8	117.2	64.5	0.1	349.9
Martin	354.7	70.9	49.0	14.2	7.7	283.8
Monroe	636.2	254.3	3.1	251.2	--	381.9
Palm Beach	1,282.6	177.5	85.0	92.5	--	1,105.1
Total	7,901.4	2,234.5	727.5	1,456.3	50.7	5,666.9

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 186,000 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

Table 2.--Area of commercial forest land, by ownership and county, 1970

County	All ownerships	Ownership class							
		National Forest	Miscellaneous Federal	State	County and municipal	Forest industry	Farmer	Miscellaneous private	
								Corporate ; Individual	
		Thousand acres							
Broward	4.5	--	--	1.1	0.6	--	--	--	2.8
Charlotte	38.0	--	--	4.9	0.6	--	15.0	5.0	12.5
Collier	220.8	--	--	0.6	($\frac{1}{1}$)	--	8.9	172.6	38.7
Dade	13.5	--	2.1	4.1	($\frac{1}{1}$)	--	6.9	--	7.3
Glades	78.6	--	2.2	--	--	--	48.6	66.0	3.5
Hendry	117.8	--	6.4	0.3	0.1	--	20.7	62.4	51.6
Lee	117.2	--	--	0.2	--	--	--	44.7	26.2
Martin	49.0	--	--	--	0.4	--	--	22.4	3.1
Monroe	3.1	--	--	--	--	--	6.6	--	39.5
Palm Beach	85.0	--	--	14.8	1.0	--	--	23.1	--
Total	727.5	--	10.7	26.0	2.7	--	106.7	396.2	185.2

1/ Less than 50 acres.

Table 3.--Area of commercial forest land, by forest-type group and county, 1970

County	All type groups	Forest-type groups									
		Longleaf- slash pine	Loblolly- shortleaf pine	Oak- pine	Oak- hickory	Oak-gum- cypress	Elm-ash- cottonwood				
								Thousand acres			
Broward	4.5	2.8	1.7	--	--	--	--				
Charlotte	38.0	25.5	--	--	--	12.5	--				
Collier	220.8	78.0	5.9	8.9	--	128.0	--				
Dade	13.5	13.5	--	--	--	--	--				
Glades	78.6	52.1	--	3.5	--	23.0	--				
Hendry	117.8	59.0	--	--	--	58.8	--				
Lee	117.2	72.5	--	6.9	6.9	30.9	--				
Martin	49.0	30.3	7.5	--	--	11.2	--				
Monroe	3.1	3.1	--	--	--	--	--				
Palm Beach	85.0	63.4	--	10.7	--	10.9	--				
Total	727.5	400.2	15.1	30.0	6.9	275.3	--				

Table 4.--Area of commercial forest land, by stand-size class and county,
1970

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling and seedling	
- - - - - <u>Thousand acres</u> - - - - -					
Broward	4.5	--	4.5	--	--
Charlotte	38.0	10.0	12.5	13.0	2.5
Collier	220.8	68.5	63.1	41.6	47.6
Dade	13.5	--	6.2	--	7.3
Glades	78.6	31.2	13.9	24.3	9.2
Hendry	117.8	24.7	52.0	22.5	18.6
Lee	117.2	7.1	24.1	44.7	41.3
Martin	49.0	11.2	7.5	11.6	18.7
Monroe	3.1	--	--	3.1	--
Palm Beach	85.0	21.6	16.5	14.0	32.9
Total	727.5	174.3	200.3	174.8	178.1

Table 5.-- Area of commercial forest land, by site class and county, 1970

County	All classes	Site class				
		1	2	3	4	5
- - - - - <u>Thousand acres</u> - - - - -						
Broward	4.5	--	--	--	2.8	1.7
Charlotte	38.0	--	--	--	15.5	22.5
Collier	220.8	--	--	--	101.8	119.0
Dade	13.5	--	--	--	--	13.5
Glades	78.6	--	--	3.5	68.1	7.0
Hendry	117.8	--	--	3.4	72.9	41.5
Lee	117.2	--	--	--	44.9	72.3
Martin	49.0	--	--	--	7.5	41.5
Monroe	3.1	--	--	--	--	3.1
Palm Beach	85.0	--	--	--	33.8	51.2
Total	727.5	--	--	6.9	347.3	373.3

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1970

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - <u>Thousand acres</u> - - - - -						
Broward	4.5	--	--	1.7	2.8	--
Charlotte	38.0	--	2.5	13.0	20.0	2.5
Collier	220.8	8.9	8.9	68.4	87.0	47.6
Dade	13.5	--	--	6.2	--	7.3
Glades	78.6	3.5	10.4	13.9	41.6	9.2
Hendry	117.8	7.0	6.9	37.2	48.1	18.6
Lee	117.2	3.4	3.5	17.2	51.8	41.3
Martin	49.0	--	--	3.8	26.5	18.7
Monroe	3.1	--	--	--	3.1	--
Palm Beach	85.0	--	3.3	9.9	38.9	32.9
Total	727.5	22.8	35.5	171.3	319.8	178.1

^{1/} See stocking standards on page 12.

Table 7.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1970

County	Sawtimber					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Million board feet					Million cubic feet ^{1/}				
Broward	--	--	--	--	--	1.8	1.8	--	--	--
Charlotte	43.1	29.8	13.3	--	--	18.6	10.8	7.8	--	--
Collier	353.8	85.6	236.2	9.6	22.4	122.1	27.8	77.3	10.1	6.9
Dade	15.7	15.7	--	--	--	6.9	6.9	--	--	--
Glades	177.8	70.6	98.1	5.7	3.4	54.3	18.1	32.2	3.2	0.8
Hendry	194.0	26.5	156.2	3.9	7.4	74.6	16.4	52.8	2.9	2.5
Lee	85.4	11.0	74.4	--	--	32.2	8.3	23.9	--	--
Martin	25.6	24.1	--	--	1.5	10.9	10.1	--	--	0.8
Monroe	2.3	2.3	--	--	--	0.5	0.5	--	--	--
Palm Beach	66.1	62.2	3.9	--	--	23.1	20.0	3.1	--	--
Total	963.8	327.8	582.1	19.2	34.7	345.0	120.7	197.1	16.2	11.0

^{1/} Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group, and county, 1969

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
Broward	--	--	--	--	--	0.1	0.1	--	--	--
Charlotte	1.5	1.3	0.2	--	--	0.4	0.3	0.1	--	--
Collier	6.9	3.2	3.7	--	--	1.6	0.9	0.7	--	--
Dade	0.4	0.4	--	--	--	0.4	0.4	--	--	--
Glades	4.3	2.3	2.0	--	--	1.0	0.5	0.5	--	--
Hendry	4.7	1.9	2.8	--	--	1.2	0.7	0.5	--	--
Lee	2.1	0.7	1.4	--	--	0.9	0.6	0.3	--	--
Martin	1.7	1.7	--	--	--	0.3	0.3	--	--	--
Monroe	(2/)	(2/)	--	--	--	(3/)	(3/)	--	--	--
Palm Beach	2.8	2.7	0.1	--	--	0.9	0.9	(3/)	--	--
Total	24.4	14.2	10.2	--	--	6.8	4.7	2.1	--	--

1/ Because of the high mortality of hardwood, there was no net growth.

2/ Less than 50,000 board feet.

3/ Less than 50,000 cubic feet.

Table 9.--Annual removals of sawtimber and growing stock on commercial forest land,
by species group and county, 1969

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Million board feet					Million cubic feet				
Broward	2.3	0.4	1.9	--	--	0.8	0.1	0.7	--	--
Charlotte	0.8	0.8	--	--	--	0.2	0.2	--	--	--
Collier	1.4	1.1	0.3	--	--	0.4	0.3	0.1	--	--
Dade	2.2	2.2	--	--	--	0.6	0.6	--	--	--
Glades	--	--	--	--	--	0.3	0.2	0.1	--	--
Hendry	4.8	2.9	1.3	--	0.6	1.8	0.9	0.6	--	0.3
Lee	--	--	--	--	--	--	--	--	--	--
Martin	1.0	0.7	--	--	0.3	0.7	0.6	--	--	0.1
Monroe	--	--	--	--	--	--	--	--	--	--
Palm Beach	6.0	6.0	--	--	--	1.7	1.7	--	--	--
Total	18.5	14.1	3.5	--	0.9	6.5	4.6	1.5	--	0.4

Table 10.--Area of commercial forest land, by forest type and ownership class, 1970

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
- - - - - <u>Thousand acres</u> - - - - -						
Softwood types:						
Longleaf pine	9.4	--	--	--	--	9.4
Slash pine	390.8	--	20.4	--	49.8	320.6
Sand pine	9.2	--	1.7	--	--	7.5
Pond pine	5.9	--	--	--	3.0	2.9
Total	415.3	--	22.1	--	52.8	340.4
Hardwood types:						
Oak-pine	30.0	--	7.4	--	6.3	16.3
Southern scrub oak	6.9	--	--	--	--	6.9
Oak-gum-cypress	275.3	--	9.9	--	47.6	217.8
Total	312.2	--	17.3	--	53.9	241.0
All types	727.5	--	39.4	--	106.7	581.4

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1970

Ownership classes	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - <u>Thousand acres</u> - - - - -						
National Forest	--	--	--	--	--	--
Other public	39.4	--	--	15.9	20.0	3.5
Forest industry	--	--	--	--	--	--
Farmer	106.7	3.5	12.9	28.9	48.1	13.3
Misc. private	581.4	19.3	22.6	126.5	251.7	161.3
All ownerships	727.5	22.8	35.5	171.3	319.8	178.1

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1970

Class of timber	: All : species	: Pine	: Other : softwood	: Soft : hardwood	: Hard : hardwood
- - - - - <u>Million cubic feet</u> - - - - -					
Sawtimber trees:					
Saw-log portion	193.2	64.0	118.0	3.6	7.6
Upper-stem portion	22.3	6.1	14.7	0.7	0.8
Total	215.5	70.1	132.7	4.3	8.4
Poletimber trees	129.5	50.6	64.4	11.9	2.6
All growing-stock trees	345.0	120.7	197.1	16.2	11.0
Rough trees:					
Sawtimber-size trees	18.0	0.1	7.9	1.4	8.6
Poletimber-size trees	33.8	0.5	16.3	6.9	10.1
Total	51.8	0.6	24.2	8.3	18.7
Rotten trees:					
Sawtimber-size trees	6.3	0.2	4.1	0.8	1.2
Poletimber-size trees	2.1	--	2.0	0.1	--
Total	8.4	0.2	6.1	0.9	1.2
Salvable dead trees:					
Sawtimber-size trees	--	--	--	--	--
Poletimber-size trees	--	--	--	--	--
Total	--	--	--	--	--
Total, all timber	405.2	121.5	227.4	25.4	30.9

Table 13.--Number of growing-stock trees on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)												29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9				
Thousand trees														
Softwood:														
Longleaf pine	410	--	189	183	28	10	--	--	--	--	--	--	--	--
Slash pine	20,786	9,588	6,004	2,938	1,154	758	223	92	24	5	--	--	--	--
Pond pine	128	--	80	48	--	--	--	--	--	--	--	--	--	--
Sand pine	130	70	36	24	--	--	--	--	--	--	--	--	--	--
Baldcypress	9,155	2,527	3,052	1,561	1,115	510	211	150	10	17	2	--	--	--
Pondcypress	15,615	5,999	4,602	2,731	1,128	647	296	112	52	37	11	--	--	--
Total softwoods	46,224	18,184	13,963	7,485	3,425	1,925	730	354	86	59	13	--	--	--
Hardwood:														
Select white oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Select red oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other white oaks	164	--	--	58	50	26	17	7	6	--	--	--	--	--
Other red oaks	827	355	151	50	76	89	51	18	10	25	2	--	--	--
Florida maple	108	--	84	24	--	--	--	--	--	--	--	--	--	--
Soft maple	2,038	999	637	215	137	12	26	7	--	5	--	--	--	--
Tupelo and blackgum	115	56	39	--	--	13	--	7	--	--	--	--	--	--
Ash	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Elm	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sweetbay	298	116	148	24	--	--	10	--	--	--	--	--	--	--
Loblolly-bay	11	--	--	--	--	11	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	780	628	108	44	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	4,341	2,154	1,167	415	263	151	104	39	16	30	2	--	--	--
All species	50,565	20,338	15,130	7,900	3,688	2,076	834	393	102	89	15	--	--	--

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)												29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9				
		----- Million cubic feet -----												
Softwood:														
Longleaf pine	3.5	--	1.1	1.8	0.4	0.2	--	--	--	--	--	--	--	--
Slash pine	116.7	22.2	27.2	26.6	14.7	15.6	5.9	3.2	1.0	0.3	--	--	--	--
Pond pine	0.8	--	0.3	0.5	--	--	--	--	--	--	--	--	--	--
Sand pine	0.5	0.1	0.2	0.2	--	--	--	--	--	--	--	--	--	--
Baldcypress	95.1	9.2	22.5	17.0	18.4	12.4	6.6	6.1	1.2	1.3	0.4	0.4	0.4	0.4
Pondcypress	132.3	21.6	29.3	28.8	18.9	14.5	8.4	4.2	2.7	2.5	1.4	1.4	1.4	1.4
Total softwoods	348.9	53.1	80.6	74.9	52.4	42.7	20.9	13.5	4.9	4.1	1.8	1.8	1.8	1.8
Hardwood:														
Select white oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Select red oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other white oaks	10.4	1.6	1.9	1.0	1.4	1.7	1.3	1.1	0.4	--	--	--	--	--
Other red oaks	17.9	1.2	2.7	1.7	2.2	2.9	2.0	1.4	0.8	2.4	0.6	0.6	0.6	0.6
Florida maple	1.0	--	0.8	0.2	--	--	--	--	--	--	--	--	--	--
Soft maple	16.3	3.6	4.7	3.2	2.1	1.0	0.9	0.2	--	0.6	--	--	--	--
Tupelo and blackgum	1.7	0.4	0.3	0.3	0.2	0.2	--	0.3	--	--	--	--	--	--
Ash	1.3	0.8	0.5	--	--	--	--	--	--	--	--	--	--	--
Elm	0.2	--	0.2	--	--	--	--	--	--	--	--	--	--	--
Sweetbay	2.5	0.8	0.9	0.3	--	--	0.5	--	--	--	--	--	--	--
Loblolly-bay	0.3	--	--	--	--	0.3	--	--	--	--	--	--	--	--
Hackberry	0.2	--	--	0.2	--	--	--	--	--	--	--	--	--	--
Willow	4.2	2.3	1.1	0.6	0.2	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	0.3	0.2	0.1	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	56.3	10.9	13.2	7.5	6.1	6.1	4.7	3.0	1.2	3.0	0.6	0.6	0.6	0.6
All species	405.2	64.0	93.8	82.4	58.5	48.8	25.6	16.5	6.1	7.1	2.4	2.4	2.4	2.4

Table 15.--Volume of growing stock on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)												29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9				
		Million cubic feet												
Softwood:														
Longleaf pine	3.5	--	1.1	1.8	0.4	0.2	--	--	--	--	--	--	--	--
Slash pine	115.9	21.8	27.1	26.4	14.7	15.6	5.9	3.2	0.9	0.3	--	--	--	--
Pond pine	0.8	--	0.3	0.5	--	--	--	--	--	--	--	--	--	--
Sand pine	0.5	0.1	0.2	0.2	--	--	--	--	--	--	--	--	--	--
Baldcypress	87.3	8.1	19.5	16.0	17.6	11.9	6.4	5.9	0.4	1.1	0.4	0.4	0.4	0.4
Pondcypress	109.8	14.5	22.3	24.2	16.7	13.8	8.3	3.8	2.4	2.5	1.3	1.3	1.3	1.3
Total softwoods	317.8	44.5	70.5	69.1	49.4	41.5	20.6	12.9	3.7	3.9	1.7	1.7	1.7	1.7
Hardwood:														
Select white oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Select red oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other white oaks	2.1	--	--	0.4	0.5	0.4	0.5	0.1	0.2	--	--	--	--	--
Other red oaks	8.3	0.8	0.5	0.3	1.0	1.5	1.2	0.7	0.5	1.5	0.3	0.3	0.3	0.3
Florida maple	0.6	--	0.4	0.2	--	--	--	--	--	--	--	--	--	--
Soft maple	11.5	3.1	3.3	1.9	1.8	0.2	0.7	0.2	--	0.3	--	--	--	--
Tupelo and blackgum	0.9	0.2	0.2	--	--	0.2	--	0.3	--	--	--	--	--	--
Ash	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Elm	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sweetbay	1.9	0.4	0.9	0.3	--	--	0.3	--	--	--	--	--	--	--
Loblolly-bay	0.3	--	--	--	--	0.3	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	1.6	1.1	0.3	0.2	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	27.2	5.6	5.6	3.3	3.3	2.6	2.7	1.3	0.7	1.8	0.3	0.3	0.3	0.3
All species	345.0	50.1	76.1	72.4	52.7	44.1	23.3	14.2	4.4	5.7	2.0	2.0	2.0	2.0

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)												
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger					
- - - - - Million board feet - - - - -														
Softwood:														
Longleaf pine	10.4	7.8	1.7	0.9	--	--	--	--	--	--	--	--	--	
Slash pine	315.2	112.5	69.6	80.2	30.2	16.9	4.3	1.5	--	--	--	--	--	
Pond pine	1.6	1.6	--	--	--	--	--	--	--	--	--	--	--	
Sand pine	0.6	0.6	--	--	--	--	--	--	--	--	--	--	--	
Baldcypress	272.2	60.6	80.7	59.2	33.1	30.5	2.0	4.1	2.0	--	--	--	--	
Pondcypress	309.9	90.5	70.6	60.7	39.8	18.4	12.5	11.4	6.0	--	--	--	--	
Total softwoods	909.9	273.6	222.6	201.0	103.1	65.8	18.8	17.0	8.0					8.0
Hardwood:														
Select white oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	
Select red oaks	--	--	--	--	--	--	--	--	--	--	--	--	--	
Other white oaks	6.6	--	1.6	1.4	2.1	0.6	0.9	--	--	--	--	--	--	
Other red oaks	28.1	--	4.0	6.3	5.3	2.5	2.0	6.8	1.2	--	--	--	--	
Florida maple	--	--	--	--	--	--	--	--	--	--	--	--	--	
Soft maple	14.5	--	8.2	1.0	3.8	0.9	--	0.6	--	--	--	--	--	
Tupelo and blackgum	2.4	--	--	1.0	--	1.4	--	--	--	--	--	--	--	
Ash	--	--	--	--	--	--	--	--	--	--	--	--	--	
Elm	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sweetbay	1.2	--	--	--	1.2	--	--	--	--	--	--	--	--	
Loblolly-bay	1.1	--	--	1.1	--	--	--	--	--	--	--	--	--	
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--	
Other eastern hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	
Total hardwoods	53.9	--	13.8	10.8	12.4	5.4	2.9	7.4	1.2					1.2
All species	963.8	273.6	236.4	211.8	115.5	71.2	21.7	24.4	9.2					9.2

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1969

Species	: Net annual growth :	: Annual timber removals
- - <u>Million cubic feet</u> - -		
Softwood:		
Yellow pines	4.7	4.6
Cypress	2.1	1.5
Total softwoods	6.8	6.1
Hardwood:		
Select white and red oaks	--	--
Other white and red oaks	--	0.4
Hard maple	--	--
Ash, walnut, and black cherry	--	--
Other hardwoods	--	--
Total hardwoods	--	0.4
All species	6.8	6.5

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1969

Species	Net annual growth	Annual timber removals
- - <u>Million board feet</u> - -		
Softwood:		
Yellow pines	14.2	14.1
Cypress	10.2	3.5
Total softwoods	24.4	17.6
Hardwood:		
Select white and red oaks	--	--
Other white and red oaks	--	0.9
Hard maple	--	--
Ash, walnut, and black cherry	--	--
Other hardwoods	--	--
Total hardwoods	--	0.9
All species	24.4	18.5

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1969

Species	Growing stock	Sawtimber
	<u>Million cubic feet</u>	<u>Million board feet</u>
Softwood:		
Yellow pines	2.9	8.2
Cypress	2.6	9.2
Total softwoods	5.5	17.4
Hardwood:		
Select white and red oaks	--	--
Other white and red oaks	1.2	4.4
Hard maple	--	--
Ash, walnut, and black cherry	--	--
Other hardwoods	0.8	1.1
Total hardwoods	2.0	5.5
All species	7.5	22.9

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1970

Ownership class	All live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
National Forest	--	--	--	--	--	Million cubic feet	--	--	--	--
Other public	22.1	6.8	11.1	2.3	1.9	16.9	6.8	8.4	0.9	0.8
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	80.4	25.8	48.6	0.9	5.1	68.8	25.7	41.7	0.2	1.2
Miscellaneous private	302.7	88.9	167.7	22.2	23.9	259.3	88.2	147.0	15.1	9.0
All ownerships	405.2	121.5	227.4	25.4	30.9	345.0	120.7	197.1	16.2	11.0

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1970

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
National Forest	--	--	--	--	--	Million board feet	--	--	--	--
Other public	36.0	14.7	19.1	0.8	1.4	11.8	--	9.4	1.3	1.1
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	129.0	64.6	62.6	--	1.8	48.2	5.2	39.3	1.0	2.7
Miscellaneous private	556.8	195.6	340.6	10.5	10.1	182.0	47.7	111.1	5.6	17.6
All ownerships	721.8	274.9	422.3	11.3	13.3	242.0	52.9	159.8	7.9	21.4

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1969

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	0.5	0.4	0.1	--	--	--	--	--	--	--
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	1.5	1.1	0.4	--	--	0.9	0.6	--	--	0.3
Miscellaneous private	4.8	3.2	1.6	--	--	5.6	4.0	1.5	--	0.1
All ownerships	6.8	4.7	2.1	--	--	6.5	4.6	1.5	--	0.4

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1969

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	0.7	0.4	0.3	--	--	--	--	--	--	--
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	5.4	3.7	1.7	--	--	1.9	1.3	--	--	0.6
Miscellaneous private	18.3	10.1	8.2	--	--	16.6	12.8	3.5	--	0.3
All ownerships	24.4	14.2	10.2	--	--	18.5	14.1	3.5	--	0.9

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1970

Forest type, species group, and class of material	All ownerships	Ownership class									
		National Forest		Other public		Forest industry		Farmer		Misc. private	
		Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Forest types:											
Growing stock:											
Softwood		720	278	--	--	1,176	607	--	--	956	412
Hardwood		5	1	--	--	--	--	--	--	6	1
Total		725	279	--	--	1,176	607	--	--	956	412
Other timber:											
Softwood		--	8	--	--	--	--	--	--	--	9
Hardwood		--	7	--	--	--	--	--	--	--	8
Total		--	15	--	--	--	--	--	--	--	17
Conifer type:											
Growing stock:											
Softwood		915	299	--	--	720	202	--	--	2,315	725
Hardwood		--	--	--	--	--	--	--	--	--	--
Total		915	299	--	--	720	202	--	--	2,315	725
Other timber:											
Softwood		--	20	--	--	--	--	--	--	57	10
Hardwood		--	42	--	--	--	--	--	--	--	67
Total		--	62	--	--	--	--	--	--	57	77
Decid. and hardwood types:											
Growing stock:											
Softwood		--	--	--	--	--	--	--	--	--	--
Hardwood		--	--	--	--	--	--	--	--	--	--
Total		--	--	--	--	--	--	--	--	--	--
Other timber:											
Softwood		--	--	--	--	--	--	--	--	--	--
Hardwood		--	--	--	--	--	--	--	--	--	--
Total		--	--	--	--	--	--	--	--	--	--
Noncommercial land hardwood types:											
Growing stock:											
Softwood		2,065	685	--	--	1,248	363	--	--	2,257	871
Hardwood		180	93	--	--	203	72	--	--	114	29
Total		2,245	778	--	--	1,451	435	--	--	2,371	900
Other timber:											
Softwood		--	96	--	--	--	116	--	--	138	--
Hardwood		--	88	--	--	--	110	--	--	97	--
Total		--	184	--	--	--	226	--	--	235	--
Forest types:											
Growing stock:											
Softwood		1,251	437	--	--	1,177	415	--	--	1,625	638
Hardwood		74	37	--	--	126	45	--	--	51	13
Total		1,325	474	--	--	1,303	460	--	--	1,676	651
Other timber:											
Softwood		--	43	--	--	--	72	--	--	--	66
Hardwood		--	40	--	--	--	69	--	--	--	44
Total		--	83	--	--	--	141	--	--	--	110
Softwood		1,325	557	--	--	1,303	601	--	--	1,676	761
Hardwood		--	--	--	--	--	--	--	--	--	--
Total		1,325	557	--	--	1,303	601	--	--	1,676	761

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1949, 1959, and 1970

Land use class	Survey completion date			Change 1959-1970
	1949	1959 ^{2/}	1970	
- - - - - <u>Thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	1,755.5	1,216.6	445.3	- 771.3
Hardwood types	418.7	669.7	282.2	- 387.5
Total	2,174.2	1,886.3	727.5	-1,158.8
Noncommercial forest land:				
Productive-reserved	24.2	54.4	50.7	- 3.7
Unproductive	1,115.6	1,153.1	1,456.3	+ 303.2
Total	1,139.8	1,207.5	1,507.0	+ 299.5
Nonforest land:				
Cropland	3/ 392.6	3/ 427.3	856.1	+ 428.8
Pasture and range	1,443.8	883.7	1,589.8	+ 706.1
Other	2,703.7	3,180.7	3,035.0	- 145.7
Total	4,540.1	4,491.7	5,480.9	+ 989.2
All land ^{1/}	7,854.1	7,585.5	7,715.4	+ 129.9

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revisions in the estimates of land area.

^{3/} Source: Census of Agriculture.

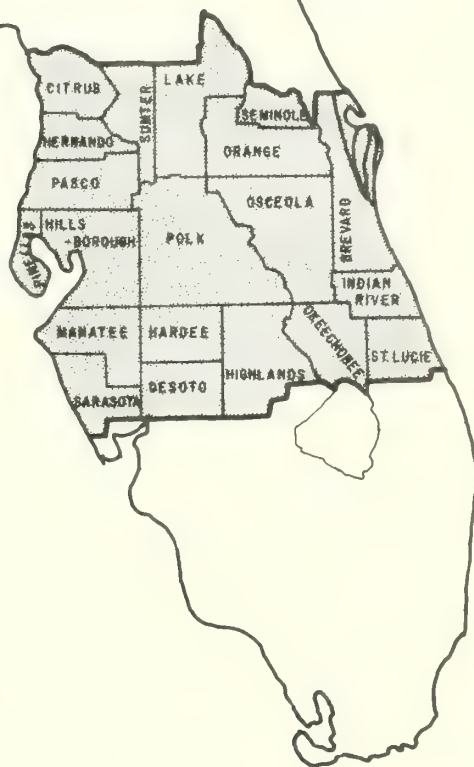
Table 26.---Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)											
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger			
			SAWTIMBER (in million board feet)											
Softwood	1949	682.7	--	--	228.4	182.4	121.4	69.8	40.0	1.8	38.9			
	1959	874.1	--	--	243.6	249.6	188.6	68.4	50.2	31.0	42.7			
	1970	909.9	--	--	273.6	222.6	201.0	103.1	65.8	18.8	25.0			
Hardwood	1949	30.4	--	--	--	6.9	5.2	1.1	0.8	7.0	9.4			
	1959	58.0	--	--	--	11.9	12.0	11.3	9.5	5.3	8.0			
	1970	53.9	--	--	--	13.8	10.8	12.4	5.4	2.9	8.6			
GROWING STOCK (in million cubic feet)														
Softwood	1949	243.0	35.6	53.2	57.7	40.5	25.1	13.9	7.9	0.4	8.7			
	1959	310.5	58.7	56.7	61.6	55.4	38.9	13.6	9.9	6.1	9.6			
	1970	317.8	44.5	70.5	69.1	49.4	41.5	20.6	12.9	3.7	5.6			
Hardwood	1949	13.6	2.6	1.6	2.0	1.6	1.3	0.3	0.2	1.7	2.3			
	1959	32.7	9.3	5.9	3.8	2.8	2.9	2.5	2.2	1.3	2.0			
	1970	27.2	5.6	5.6	3.3	3.3	2.6	2.7	1.3	0.7	2.1			
ALL LIVE TIMBER (in million cubic feet)														
Softwood	1949	266.5	42.4	60.8	62.5	42.9	25.8	14.2	8.2	0.5	9.2			
	1959	342.6	69.9	64.8	66.7	58.7	40.0	13.9	10.3	8.1	10.2			
	1970	348.9	53.1	80.6	74.9	52.4	42.7	20.9	13.5	4.9	5.9			
Hardwood	1949	27.1	5.1	3.9	4.6	3.1	2.9	0.4	0.4	2.8	3.9			
	1959	67.9	18.1	14.0	8.6	5.3	6.7	4.3	5.4	2.1	3.4			
	1970	56.3	10.9	13.2	7.5	6.1	6.1	4.7	3.0	1.2	3.6			

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys as well as for the reclassifications of commercial forest land.



Forest Statistics for Central Florida 1970



Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in Central Florida. The survey was started in November 1969 and completed in June 1970. Findings of the three previous surveys, completed in 1936, 1949, and 1959, provide the basis for measuring changes that have occurred and trends that have developed over the past 34 years. However, in this report, the primary emphasis is on the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of May 22, 1928, is a continuing nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The general objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and to ascertain rates of forest growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 20-county area covered by this report is one of four Survey units in Florida. Similar reports, USDA Forest Service Resource Bulletins SE-14, 15, and 16, have been issued for Northwest, Northeast, and South Florida and copies are available at the Southeastern Station, along with an interim summary of some of the State totals. The final State report containing an in-depth analysis of the findings should be available by early 1971.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Division of Forestry, Florida Department of Agriculture and Consumer Services, in the collection of the field data.

Joe P. McClure, Project Leader of Forest Survey in the Southeast, organized and coordinated the various phases of the Survey. Noel D. Cost was in charge of the data collection. William H. B. Haines was in charge of the computations. Richard L. Welch was responsible for compiling the timber removal and mortality information. Herbert A. Knight was in charge of the analysis and reporting.

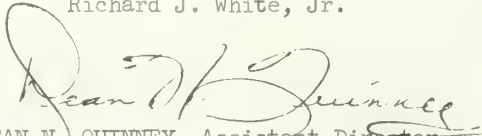
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Since 1959, area of commercial forest in Central Florida has declined from 3.2 to 2.7 million acres, or 16 percent, excluding the reclassification of 1.7 million acres from non-stocked forest to natural rangeland. Some 589,400 acres were actually diverted from commercial forest to other land uses, while only 56,400 acres of new forest were added. Volume of softwood timber has increased by 218 million cubic feet, or 25 percent. Volume of hardwood timber has increased by 146 million cubic feet, or 23 percent. In 1969, net growth of growing stock exceeded removals by an estimated 35 million cubic feet, or 73 percent. Since 1959, over 40 percent of the timber removals have resulted from land clearing where the timber was not used for products.

Snyder, Nolan L., and Knight, Herbert A.
1970. Forest Statistics for Central Florida, 1970. Southeast. Forest Exp. Sta., USDA Forest Serv. Resource Bull. SE-17, 35 pp.

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Herbert A. Knight, Associate Resource Analyst

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HIGHLIGHTS

Since 1959 in Central Florida--

- area of commercial forest has declined from 3.2 to 2.7 million acres, or 16 percent, excluding the reclassification of 1.7 million acres from nonstocked forest to natural rangeland. Some 589,400 acres were actually diverted from commercial forest to other land uses, while only 56,400 acres of new forest were added. About 57 percent of the diversion was to agricultural use and most of the remaining 43 percent was to urban development.
- average stand density of all live trees 5.0 inches d.b.h. and larger has increased from 32 to 46 square feet of basal area per acre. Two out of every three acres of commercial forest, however, are still poorly stocked with growing-stock trees.
- volume of softwood growing stock has increased by 218 million cubic feet, or 25 percent. All of the softwood species showed gains in inventory volume except longleaf pine which decreased 23 percent. Cypress is the predominant species in this 20-county area and makes up 59 percent of the total volume of softwood growing stock. Slash pine is the second leading species and makes up 21 percent of the softwood volume.
- volume of hardwood growing stock has increased by 146 million cubic feet, or 23 percent. All of the major hardwood species showed gains in inventory volume. Blackgum and tupelo are the leading hardwood species and, together with other soft-textured species, such as red maple, sweetgum, bay, and magnolia, make up 57 percent of the total volume of hardwood growing stock.
- volume of sawtimber has increased by 1,343 million board feet, or almost 32 percent. About 61 percent of the board-foot volume is in small sawtimber--trees less than 15.0 inches d.b.h.
- net growth of both softwood and hardwood has exceeded timber removals. In 1969, net growth of growing stock totaled 83.2 million cubic feet and exceeded removals by an estimated 35.0 million cubic feet, or 73 percent. About 31 percent of this growth over removals was pine, 24 percent other softwoods, and 45 percent hardwood. By ownership, 13 percent of the growth over removals was on public lands, 21 percent on farm woodlands, and 66 percent on other miscellaneous private lands.

- mortality of growing stock has reduced gross growth by almost 20 percent, and in 1969 was estimated to total 20 million cubic feet. In 1969, 64 percent of the growing-stock mortality was hardwood and 36 percent was softwood. Fire was the leading identifiable cause of death, followed by weather, suppression, and insects.
- the annual harvest of pulpwood has averaged about 152,000 cords, ranging from a low of 116,900 cords in 1963 to a high of 201,600 cords in 1968. Over 40 percent of the timber removals, however, have resulted from land clearing and development where the timber was not used for products of any kind.

This latest Forest Survey also shows that--

- about 88 percent, 2,386,600 acres, of the commercial forest land in Central Florida is privately owned. Commercial forest land that is publicly owned totals 321,400 acres, most of which is in three large holdings: the Withlacoochee State Forest, Ocala National Forest, and Avon Park Air Force Range. Forest industry does not own any commercial forest land in Central Florida according to the survey findings.
- about 135,000 acres, or 5 percent, of the commercial forest have been artificially reforested. Over 80 percent of this tree planting has occurred since the 1959 Forest Survey.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented to permit adding any combination of counties together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Estimates of forest and nonforest areas were based on the ground classification of 4,233 sample clusters systematically distributed within the 20-county area. At each of the sample clusters 16 points were classified as to land use. Because of the unique and complex land-use patterns which exist in this Survey Unit, photo classifications and direct aerial observation normally used in the area sample were not attempted. The area estimates and land-use separations, therefore, were based entirely upon the ground classifications.
2. Approximately 1,720,700 acres of land classified as non-stocked forest land in the 1959 survey were reclassified as rangeland. This step was taken in an attempt to provide a more realistic measure of the timber resource in this 20-county area.
3. Estimates of timber volume and forest classifications were based on measurements recorded at 960 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots systematically spaced on an acre were measured at each of these sample locations using a basal area factor of 37.5 square feet per acre. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.
4. Existing volume-prediction equations were used to compute the volumes of individual tally trees. These volume equations were developed from measurements on standing trees in northern Florida and other areas of the Southeast. A mirror caliper and sectional aluminum poles were used to obtain the measurements. Felled trees were measured at active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 815 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors:

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	3.54
Per billion cubic feet of growing stock - - - - -	6.22
Per billion cubic feet of net annual growth - - - - -	1.27
Per billion cubic feet of annual removals - - - - -	2.46

Sampling errors for county and unit totals,^{1/} in terms of one standard error

County	:	Cubic-foot volume of growing stock		
	:	Inventory	Growth	Removals
	:			
- - - - - <u>Sampling error</u> ^{2/} - - - - -				
Brevard	11.37	25.58	22.38	52.27
Citrus	4.99	16.68	16.07	32.81
De Soto	15.64	29.46	29.22	101.21
Hardee	12.96	21.34	31.89	56.44
Hernando	6.20	16.46	16.03	33.33
Highlands	13.22	31.78	30.07	73.33
Hillsborough	8.28	17.88	16.87	49.33
Indian River	19.13	46.23	38.68	70.58
Lake	6.26	11.76	11.92	38.97
Manatee	11.87	27.63	32.23	52.21
Okeechobee	17.30	29.31	31.50	(3/)
Orange	6.88	16.04	14.62	39.33
Osceola	6.99	13.02	12.71	43.02
Pasco	7.66	15.67	15.92	53.83
Pinellas	17.95	53.07	48.09	41.69
Polk	6.27	13.27	13.21	29.72
St. Lucie	18.82	29.41	28.22	101.75
Sarasota	12.48	23.74	24.51	53.08
Seminole	8.86	20.45	23.18	44.33
Sumter	7.67	16.61	16.14	26.32
Unit total	2.15	4.55	4.42	11.23

^{1/} Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: e = Sampling error of the volume or area total in question.

SE - Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

^{3/} Undefined.

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mts.), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past two years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly-owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material, and (b) all live trees of non-commercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 inch to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mt., sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ^{1/}
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

^{1/} Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
6	63.2	61.0	68.2	60.0	60.0
8	71.2	68.1	76.0	68.4	68.4
10	75.9	73.1	81.4	73.4	73.4
12	79.1	76.7	85.2	76.4	76.4
14	80.9	79.4	88.2	78.4	78.4
16	82.3	81.6	90.4	79.8	79.8
18	83.0	83.3	92.3	80.8	80.8
20	83.2	84.8	93.8	81.5	81.5
22	83.7	86.0	95.1	82.1	82.1
24+	84.7	87.5	97.6	83.3	83.3
Average	75.9	73.4	80.2	73.4	75.2

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in Central Florida was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1970

County	All land ^{1/}	Forest land				Nonforest land ^{2/}
		Total	Commercial forest	Unproductive forest	Productive reserved	
----- Thousand acres -----						
Brevard	665.8	128.7	116.4	12.3	--	537.1
Citrus	410.9	252.3	252.3	--	--	158.6
De Soto	405.3	46.9	45.8	1.1	--	358.4
Hardee	410.1	76.4	72.6	3.5	0.3	333.7
Hernando	313.4	187.0	187.0	--	--	126.4
Highlands	681.8	109.1	91.6	14.3	3.2	572.7
Hillsborough	684.0	170.8	150.3	17.8	2.7	513.2
Indian River	322.2	44.4	37.5	6.9	--	277.8
Lake	674.4	289.1	286.0	2.2	0.9	385.3
Manatee	480.9	79.9	66.5	5.5	7.9	401.0
Okeechobee	499.2	46.6	45.0	1.6	--	452.6
Orange	605.5	213.8	211.9	1.8	0.1	391.7
Osceola	869.3	239.6	239.4	0.2	(3/)	629.7
Pasco	488.3	179.8	178.7	1.1	--	308.5
Pinellas	185.9	47.6	41.2	6.1	0.3	138.3
Polk	1,229.3	314.5	296.0	17.5	1.0	914.8
St. Lucie	373.7	47.2	43.3	3.9	--	326.5
Sarasota	375.6	83.9	76.5	0.2	7.2	291.7
Seminole	193.4	103.1	101.8	1.3	(3/)	90.3
Sumter	369.5	171.8	168.2	3.5	0.1	197.7
Total	10,238.5	2,832.5	2,708.0	100.8	23.7	7,406.0

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 181,200 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

^{3/} Less than 50 acres.

Table 2.--Area of commercial forest land, by ownership class and county, 1970

County	All ownerships	Ownership class									
		National Forest	Miscellaneous Federal	State	County and municipal	Forest industry ^{2/}	Farmer	Miscellaneous private			
								Corporate	Individual		
					Thousand acres						
Brevard	116.3	--	20.5	2.6	0.4	--	--	59.9	32.9		
Citrus	252.3	--	5.8	40.7	0.3	--	37.1	37.1	131.3		
De Soto	45.8	--	--	3.5	0.1	--	15.8	13.2	13.2		
Hardee	72.6	--	--	0.2	0.1	--	51.7	17.2	3.4		
Hernando	187.0	--	3.5	32.5	2.2	--	12.0	79.2	57.6		
Highlands	91.6	--	50.0	1.3	0.7	--	10.3	15.5	13.8		
Hillsborough	150.4	--	--	0.4	0.3	--	51.7	54.4	43.6		
Indian River	37.5	--	--	--	0.4	--	18.5	9.3	9.3		
Lake	286.0	70.2	0.3	13.5	0.4	--	74.0	38.3	89.3		
Manatee	66.5	--	--	(1/)	0.2	--	36.8	25.8	3.7		
Okeechobee	44.9	--	--	--	--	--	35.9	3.0	6.0		
Orange	211.9	--	0.1	6.8	0.1	--	65.5	59.7	79.7		
Osceola	239.4	--	--	2.5	0.3	--	77.9	141.4	17.3		
Pasco	178.7	--	--	7.1	(1/)	--	34.9	46.5	90.2		
Pinellas	41.2	--	--	--	0.3	--	7.5	14.8	18.6		
Polk	296.1	--	15.4	5.1	1.2	--	75.6	162.4	36.4		
St. Lucie	43.3	--	--	1.2	0.3	--	27.1	12.3	2.4		
Sarasota	76.5	--	--	--	0.1	--	33.2	29.9	13.3		
Seminole	101.8	--	0.3	(1/)	0.5	--	38.2	19.1	43.7		
Sumter	168.2	--	0.1	29.9	--	--	73.5	17.7	47.0		
Total	2,708.0	70.2	56.0	147.3	7.9	--	777.2	856.7	752.7		

^{1/} Less than 50 acres.

^{2/} Forest industry does not own any commercial forest land in Central Florida according to the survey findings; however, the sample estimated 2,700 acres of miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1970

County	All type groups	Forest-type groups							
		Longleaf- slash pine	Loblolly- shortleaf pine	Oak - pine	Oak - hickory	Oak-gum- cypress	Elm-ash- cottonwood	Thousand acres	
Brevard	116.3	52.1	15.0	3.0	11.5	31.7	3.0		
Citrus	252.3	41.7	8.5	35.5	107.2	56.6	2.8		
De Soto	45.8	7.9	--	2.6	5.3	30.0	--		
Hardee	72.6	17.3	--	6.9	3.4	45.0	--		
Hernando	187.0	26.7	18.0	19.5	91.4	29.0	2.4		
Highlands	91.6	33.5	1.7	3.4	12.3	40.7	--		
Hillsborough	150.4	29.9	5.5	8.2	29.9	74.2	2.7		
Indian River	37.5	22.0	3.1	3.1	3.1	6.2	--		
Lake	286.0	76.6	65.9	22.9	15.3	100.2	5.1		
Manatee	66.5	29.4	11.3	--	3.7	22.1	--		
Okeechobee	44.9	18.0	--	--	3.0	23.9	--		
Orange	211.9	63.2	37.1	9.1	11.4	91.1	--		
Osceola	239.4	69.5	5.8	11.6	14.4	138.1	--		
Pasco	178.7	42.0	--	5.8	52.4	78.5	--		
Pinellas	41.2	18.9	3.7	--	--	18.6	--		
Polk	296.1	80.5	5.6	25.2	39.2	137.2	8.4		
St. Lucie	43.3	28.6	2.5	2.4	--	9.8	--		
Sarasota	76.5	59.8	3.3	--	--	13.4	--		
Seminole	101.8	27.3	9.0	13.6	13.7	38.2	--		
Sumter	168.2	31.4	11.8	13.5	23.5	82.1	5.9		
Total	2,708.0	776.3	207.8	186.3	440.7	1,066.6	30.3		

Table 4.--Area of commercial forest land, by stand-size class and county,
1970

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling and seedling	
- - - - - <u>Thousand acres</u> - - - - -					
Brevard	116.3	35.9	22.7	32.1	25.6
Citrus	252.3	64.7	37.1	14.7	135.8
De Soto	45.8	17.6	7.9	2.6	17.7
Hardee	72.6	45.0	6.9	3.5	17.2
Hernando	187.0	55.6	36.1	19.4	75.9
Highlands	91.6	28.6	10.3	17.8	34.9
Hillsborough	150.4	62.6	35.4	14.3	38.1
Indian River	37.5	18.9	6.2	3.1	9.3
Lake	286.0	91.4	95.3	53.6	45.7
Manatee	66.5	29.4	7.4	7.6	22.1
Okeechobee	44.9	21.0	9.0	8.9	6.0
Orange	211.9	62.7	56.9	40.5	51.8
Osceola	239.4	100.6	63.5	28.9	46.4
Pasco	178.7	68.7	46.0	14.5	49.5
Pinellas	41.2	11.2	7.4	3.7	18.9
Polk	296.1	97.6	86.5	30.8	81.2
St. Lucie	43.3	13.8	7.4	12.3	9.8
Sarasota	76.5	23.4	23.2	16.6	13.3
Seminole	101.8	38.2	22.7	8.2	32.7
Sumter	168.2	66.1	35.3	35.1	31.7
Total	2,708.0	953.0	623.2	368.2	763.6

Table 5.--Area of commercial forest land, by site class and county, 1970

County	All classes	Site class				
		1	2	3	4	5
- - - - - <u>Thousand acres</u> - - - - -						
Brevard	116.3	--	--	--	47.9	68.4
Citrus	252.3	--	--	16.6	93.8	141.9
De Soto	45.8	--	--	2.6	37.9	5.3
Hardee	72.6	--	--	--	41.4	31.2
Hernando	187.0	--	--	14.5	105.0	67.5
Highlands	91.6	--	--	3.4	58.4	29.8
Hillsborough	150.4	--	--	8.2	93.2	49.0
Indian River	37.5	--	--	--	28.2	9.3
Lake	286.0	--	--	43.0	150.0	93.0
Manatee	66.5	--	--	3.7	44.1	18.7
Okeechobee	44.9	--	--	--	29.9	15.0
Orange	211.9	--	--	5.7	96.8	109.4
Osceola	239.4	--	--	8.7	141.0	89.7
Pasco	178.7	--	--	11.1	89.1	78.5
Pinellas	41.2	--	--	3.7	18.6	18.9
Polk	296.1	--	--	2.8	181.3	112.0
St. Lucie	43.3	--	--	2.4	19.7	21.2
Sarasota	76.5	--	--	--	49.8	26.7
Seminole	101.8	--	--	16.4	60.9	24.5
Sumter	168.2	--	2.3	23.9	112.6	29.4
Total	2,708.0	--	2.3	166.7	1,499.6	1,039.4

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1970

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - <u>Thousand acres</u> - - - - -						
Brevard	116.3	2.6	6.0	21.0	61.1	25.6
Citrus	252.3	--	16.3	30.7	69.6	135.7
De Soto	45.8	--	--	1.8	26.4	17.6
Hardee	72.6	--	--	13.8	41.6	17.2
Hernando	187.0	4.8	9.6	53.2	43.4	76.0
Highlands	91.6	--	10.2	17.5	29.0	34.9
Hillsborough	150.4	10.9	21.8	24.5	55.1	38.1
Indian River	37.5	--	3.1	6.2	18.9	9.3
Lake	286.0	5.3	53.6	79.6	101.8	45.7
Manatee	66.5	--	--	7.3	37.1	22.1
Okeechobee	44.9	3.0	3.0	18.0	14.9	6.0
Orange	211.9	--	22.8	45.5	91.8	51.8
Osceola	239.4	14.4	57.7	51.5	69.3	46.5
Pasco	178.7	11.7	22.7	43.1	51.8	49.4
Pinellas	41.2	--	--	7.4	14.9	18.9
Polk	296.1	14.0	37.4	96.3	67.2	81.2
St. Lucie	43.3	--	--	4.9	28.6	9.8
Sarasota	76.5	--	3.3	6.6	53.3	13.3
Seminole	101.8	--	2.7	13.6	52.7	32.8
Sumter	168.2	15.7	22.9	52.7	45.2	31.7
Total	2,708.0	82.4	293.1	595.2	973.7	763.6

^{1/} See stocking standards on page 12.

Table 7.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1970

County	Sawtimber					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
	Million board feet					Million cubic feet ^{1/}				
Brevard	206.9	65.3	18.2	53.4	70.0	62.1	21.2	8.3	14.8	17.8
Citrus	330.4	104.3	95.2	60.8	70.1	98.8	28.4	25.6	20.0	24.8
De Soto	59.1	4.7	11.4	27.2	15.8	19.7	1.7	3.6	9.7	4.7
Hardee	167.0	51.8	22.0	27.6	65.6	48.6	13.3	10.3	9.6	15.4
Hernando	356.8	88.6	16.3	119.5	132.4	110.1	22.7	5.4	39.9	42.1
Highlands	163.0	36.3	93.6	26.8	6.3	49.8	8.7	22.3	15.3	3.5
Hillsborough	438.8	99.1	177.6	70.9	91.2	141.4	22.9	63.8	26.0	28.7
Indian River	88.3	37.4	33.6	8.2	9.1	25.6	12.5	9.0	1.7	2.4
Lake	569.5	242.3	103.8	139.0	84.4	200.6	76.7	40.9	54.5	28.5
Manatee	101.8	41.2	--	38.5	22.1	27.0	10.9	--	9.9	6.2
Okeechobee	112.0	24.8	41.1	41.0	5.1	40.3	8.1	11.3	19.0	1.9
Orange	336.9	83.5	119.2	102.4	31.8	122.7	28.4	45.5	38.9	9.9
Osceola	683.5	127.6	410.5	103.4	42.0	240.5	34.7	145.4	43.2	17.2
Pasco	456.9	103.5	175.5	83.4	94.5	158.1	26.7	66.4	32.9	32.1
Pinellas	37.2	16.3	14.8	3.8	2.3	13.8	5.7	5.9	1.3	0.9
Polk	631.8	182.0	246.7	112.7	90.4	245.7	56.0	100.8	56.0	32.9
St. Lucie	33.8	24.7	3.8	3.7	1.6	10.8	8.3	1.0	0.8	0.7
Sarasota	76.0	69.1	--	4.3	2.6	25.2	21.9	--	1.6	1.7
Seminole	192.0	62.3	24.6	43.0	62.1	55.1	19.6	5.5	12.3	17.7
Sumter	561.6	75.4	252.7	101.0	132.5	175.3	20.2	75.8	36.3	43.0
Total	5,603.3	1,540.2	1,860.6	1,170.6	1,031.9	1,871.2	448.6	646.8	443.7	332.1

^{1/} Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1969

County	Sawtimber					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
	Million board feet					Million cubic feet				
Brevard	9.9	4.8	0.7	1.9	2.5	3.9	2.8	0.2	0.5	0.4
Citrus	15.9	7.1	3.0	2.9	2.9	4.0	1.6	0.6	0.8	1.0
De Soto	3.7	0.3	0.6	1.7	1.1	0.8	0.2	0.1	0.3	0.2
Hardee	7.6	3.5	0.7	1.6	1.8	2.0	1.1	0.2	0.3	0.4
Hernando	19.4	4.9	0.8	6.1	7.6	5.1	1.3	0.1	1.7	2.0
Highlands	8.9	2.4	3.0	2.6	0.9	1.9	0.4	0.7	0.6	0.2
Hillsborough	20.6	5.2	6.7	4.2	4.5	4.9	1.1	1.7	1.2	0.9
Indian River	5.7	3.3	1.7	0.4	0.3	1.4	1.0	0.2	0.1	0.1
Lake	36.9	19.8	3.5	8.7	4.9	11.3	6.1	1.3	2.9	1.0
Manatee	4.8	2.1	--	2.1	0.6	1.2	0.6	--	0.4	0.2
Okeechobee	8.1	1.8	1.9	4.2	0.2	2.1	0.7	0.3	1.0	0.1
Orange	21.9	8.0	5.1	7.2	1.6	5.7	2.1	1.5	1.8	0.3
Osceola	33.2	8.1	16.0	7.0	2.1	8.8	1.9	4.3	1.8	0.8
Pasco	21.2	6.1	6.4	4.5	4.2	6.2	2.0	1.7	1.2	1.3
Pinellas	2.1	1.0	0.8	0.2	0.1	1.0	0.7	0.2	0.1	(1/)
Polk	38.7	16.1	10.8	7.3	4.5	11.3	4.3	3.4	2.6	(1/)
St. Lucie	3.1	2.4	0.3	0.3	0.1	0.7	0.6	0.1	(1/)	0.1
Sarasota	6.1	5.8	--	0.2	0.1	1.8	1.6	--	0.1	0.6
Seminole	8.4	3.8	0.5	1.8	2.3	2.6	1.5	0.1	0.4	0.6
Sumter	26.1	4.8	10.0	6.4	4.9	6.5	1.5	2.1	1.5	1.4
Total	302.3	111.3	72.5	71.3	47.2	83.2	33.1	18.8	19.3	12.0

1/ Less than 50,000 cubic feet.

Table 9.--Annual removals of sawtimber and growing stock on commercial forest land,
by species group and county, 1969

County	Sawtimber					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
			Million board feet					Million cubic feet		
Brevard	4.4	4.4	--	--	--	1.4	1.4	--	--	--
Citrus	8.6	6.9	--	0.9	0.8	2.9	2.2	--	0.2	0.5
De Soto	0.3	--	--	0.3	--	0.1	--	--	0.1	--
Hardee	0.8	0.4	--	--	0.4	0.3	0.1	--	--	0.2
Hernando	10.7	8.4	--	0.3	2.0	2.8	2.1	--	0.1	0.6
Highlands	1.7	0.4	--	1.3	--	0.4	0.1	--	0.3	--
Hillsborough	18.2	3.0	10.7	2.0	2.5	4.8	0.7	2.8	0.7	0.6
Indian River	1.3	--	--	0.5	0.8	0.4	0.1	--	0.1	0.2
Lake	10.3	0.8	0.3	8.6	0.6	3.6	0.9	0.2	2.3	0.2
Manatee	7.5	7.5	--	--	--	1.8	1.8	--	--	--
Okeechobee	--	--	--	--	--	--	--	--	--	--
Orange	13.2	5.7	5.8	1.7	--	4.5	2.1	1.4	1.0	--
Osceola	8.9	3.8	2.0	1.9	1.2	2.9	1.6	0.4	0.7	0.2
Pasco	17.0	2.1	14.3	0.6	--	4.0	0.6	3.1	0.3	--
Pinellas	7.1	5.2	1.9	--	--	1.7	1.2	0.5	--	--
Polk	26.2	9.8	2.7	5.9	7.8	9.3	3.7	1.0	2.1	2.5
St. Lucie	0.3	0.3	--	--	--	0.1	0.1	--	--	--
Sarasota	6.0	6.0	--	--	--	1.4	1.4	--	--	--
Seminole	5.9	1.6	1.8	1.8	0.7	1.3	0.5	0.3	0.3	0.2
Sumter	14.8	3.7	4.3	1.7	5.1	4.5	1.6	0.9	0.7	1.3
Total	163.2	70.0	43.8	27.5	21.9	48.2	22.2	10.6	8.9	6.5

Table 10.--Area of commercial forest land, by forest type and ownership class, 1970

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
----- <u>Thousand acres</u> -----						
Softwood types:						
Longleaf pine	275.1	12.5	31.6	--	69.5	161.5
Slash pine	51.2	17.6	70.9	--	163.5	249.2
Loblolly pine	7.7	--	--	--	2.6	5.1
Sand pine	122.2	17.6	6.3	--	27.6	70.7
Eastern redcedar	5.7	--	--	--	--	5.7
Pond pine	72.2	5.0	0.9	--	33.4	32.9
Total	984.1	52.7	109.7	--	296.6	525.1
Hardwood types:						
Oak-pine	186.3	7.5	19.7	--	46.3	112.8
Oak-hickory	68.5	--	--	--	21.3	47.2
Southern scrub oak	372.2	2.5	42.1	--	74.7	252.9
Oak-gum-cypress	1,066.6	7.5	79.7	--	335.8	643.6
Elm-ash-cottonwood	30.3	--	--	--	2.5	27.8
Total	1,723.9	17.5	141.5	--	480.6	1,084.3
All types	2,708.0	70.2	251.2	--	777.2	1,609.4

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1970

Ownership classes	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - Thousand acres - - - - -						
National Forest	70.2	--	5.0	12.5	40.1	12.6
Other public	251.2	12.3	21.6	66.8	79.5	71.0
Forest industry	--	--	--	--	--	--
Farmer	777.2	34.1	89.4	161.8	289.5	202.4
Misc. private	1,609.4	36.0	177.1	354.1	564.6	477.6
All ownerships	2,708.0	82.4	293.1	595.2	973.7	763.6

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1970

Class of timber	: All : species	: Pine	: Other : softwood	: Soft : hardwood	: Hard : hardwood
- - - - - Million cubic feet - - - - -					
Sawtimber trees:					
Saw-log portion	1,090.0	291.7	356.7	220.4	221.2
Upper-stem portion	137.1	28.0	44.3	42.2	22.6
Total	1,227.1	319.7	401.0	262.6	243.8
Poletimber trees	644.1	128.9	245.8	181.1	88.3
All growing-stock trees	1,871.2	448.6	646.8	443.7	332.1
Sawtimber trees:					
Sawtimber-size trees	160.8	2.5	10.4	26.3	121.6
Poletimber-size trees	164.0	2.0	13.6	41.6	106.8
Total	324.8	4.5	24.0	67.9	228.4
Poletimber trees:					
Sawtimber-size trees	53.6	--	6.4	14.1	33.1
Poletimber-size trees	7.8	--	0.6	3.2	4.0
Total	61.4	--	7.0	17.3	37.1
Sawtimber dead trees:					
Sawtimber-size trees	--	--	--	--	--
Poletimber-size trees	2.5	2.5	--	--	--
Total	2.5	2.5	--	--	--
Total, all timber	2,259.9	455.6	677.8	528.9	597.6

Table 1. --Number of growing-stock trees on commercial forest land, by species and diameter class, 197

Table 1.--Number of growing-stock trees on commercial forest lands, by species														
Species	Diameter class (inches at breast height)												22.0 and larger	
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9		
Softwood:														
Longleaf pine	4,100	2,065	3,157	3,114	2,877	427	67	25	--	--	--	--	--	
Slash pine	1,067	1,087	1,851	2,065	1,769	603	247	108	21	--	--	--	--	
Loblolly pine	1,063	1,088	1,854	1,769	1,769	603	247	108	21	--	--	--	--	
Pond pine	1,839	1,243	617	435	230	117	48	24	1	--	--	--	--	
Sand pine	8,433	2,560	961	524	130	147	6	--	--	--	--	--	--	
Baldcypress	17,470	6,880	2,859	3,229	1,178	547	233	91	165	11	--	--	--	
Pondcypress	58,814	20,340	10,081	4,608	1,604	678	166	81	35	2	--	--	--	
Atlantic white cedar	--	--	--	--	--	--	--	--	--	--	--	--	--	
Eastern redcedar	632	349	109	34	72	28	--	--	2	--	--	--	--	
Total softwoods	145,060	60,078	32,341	22,024	13,672	5,237	2,532	900	317	267	15	--	--	
Hardwood:														
Select white oak	49	--	--	--	20	3	--	5	4	--	--	--	--	
Select red oaks	2,363	306	404	18	--	--	296	202	7	120	--	--	--	
Other white oaks	9,084	2,846	1,440	51	604	430	308	197	221	14	--	--	--	
Other red oaks	1,323	252	149	21	170	52	61	14	18	4	--	--	--	
Hickory	110	--	74	10	24	10	--	--	--	--	--	--	--	
Florida maple	10,008	3,471	1,627	1,212	664	334	206	96	87	1	--	--	--	
Soft maple	6,950	2,173	1,130	665	506	181	197	55	53	5	--	--	--	
Sweet gum	12,726	4,384	2,550	1,234	75	423	198	152	112	5	--	--	--	
Tupelo and black gum	10,000	4,244	1,860	800	329	277	115	34	20	1	--	--	--	
Ash	12,141	6,330	2,423	1,374	543	291	91	38	42	16	--	--	--	
Bay and magnolia	157	--	--	15	--	33	--	5	--	--	--	--	--	
Basswood	20	--	--	--	--	--	6	5	11	--	--	--	--	
Yellow-poplar	2,050	1,119	270	240	122	69	23	44	17	2	--	--	--	
Elm	78	53	--	--	--	--	5	--	--	--	--	--	--	
Black cherry	278	110	23	--	--	--	--	--	--	--	--	--	--	
Hackberry	140	119	30	--	--	--	--	--	--	--	--	--	--	
Willow	35	111	103	40	9	--	--	--	--	--	--	--	--	
Other eastern hardwoods	68,280	26,391	15,657	10,030	6,219	4,241	2,325	1,485	848	982	232	--	--	
Total hardwoods	214,340	86,662	55,018	25,330	18,898	10,238	4,857	2,385	1,185	1,249	217	--	--	
All species														

1/ Swamp chestnut oak.
2/ Shumard oak.

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9			
- Million cubic feet -													
Softwood:													
Longleaf pine	127.8	9.6	16.5	32.2	32.6	20.3	12.7	2.8	1.1	--	--	--	--
Slash pine	231.2	25.2	41.9	45.3	40.8	40.8	20.5	9.5	4.7	2.5	--	--	--
Loblolly pine	11.9	0.7	1.0	1.5	3.0	0.8	0.9	1.5	0.6	1.9	--	--	--
Pond pine	34.0	3.1	5.6	5.8	6.3	5.3	3.6	2.1	1.2	0.7	0.3	0.3	0.3
Sand pine	48.2	11.1	16.2	10.7	5.4	3.0	1.6	0.2	--	--	--	--	--
Baldcypress	215.8	21.7	28.5	34.2	39.9	31.5	20.3	15.4	5.8	14.7	3.8	3.8	3.8
Pondcypress	456.1	91.9	116.2	102.7	72.4	38.4	20.3	6.9	4.2	2.6	0.5	0.5	0.5
Atlantic white cedar	0.1	--	0.1	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	5.8	0.9	0.7	0.7	1.3	0.7	1.0	--	--	0.5	--	--	--
Total softwoods	1,130.9	164.2	226.7	233.1	201.7	140.8	80.9	38.4	17.6	22.9	4.6	4.6	4.6
Hardwood:													
Select white oaks ^{1/}	1.7	--	--	--	0.4	0.2	--	0.5	0.3	0.3	--	--	--
Select red oaks ^{2/}	1.2	--	--	0.2	--	0.1	--	--	0.2	0.5	0.2	0.5	0.2
Other white oaks	199.3	6.6	12.0	16.7	15.0	17.3	21.7	17.5	16.5	46.8	29.2	29.2	29.2
Other red oaks	185.4	12.9	16.0	18.7	19.7	20.7	17.8	21.7	15.0	28.6	14.3	14.3	14.3
Hickory	16.7	0.6	0.8	2.5	3.3	1.3	2.4	2.9	0.8	1.4	0.7	0.7	0.7
Florida maple	4.6	0.5	0.5	0.7	1.0	1.2	0.1	--	--	0.2	0.4	0.4	0.4
Soft maple	143.5	16.0	20.8	22.1	26.4	19.1	13.5	9.7	6.5	8.8	0.6	0.6	0.6
Sweetgum	85.8	6.1	10.6	14.5	12.3	16.0	6.6	9.0	3.5	5.9	1.3	1.3	1.3
Tupelo and blackgum	156.8	16.3	23.3	25.1	24.2	20.1	15.8	9.7	8.9	11.3	2.1	2.1	2.1
Ash	128.2	19.2	18.8	26.2	18.5	20.4	11.4	7.2	3.1	2.7	0.7	0.7	0.7
Bay and magnolia	103.9	21.7	18.8	16.2	13.3	13.9	8.5	4.1	1.9	3.3	2.2	2.2	2.2
Basswood	4.2	--	--	1.8	0.6	--	1.2	0.3	0.3	--	--	--	--
Yellow-poplar	1.6	--	--	--	--	--	--	0.3	0.3	1.0	--	--	--
Elm	28.5	3.0	4.0	3.0	5.0	4.4	3.0	1.1	2.5	1.9	0.6	0.6	0.6
Black cherry	0.5	0.2	--	0.1	--	--	--	0.2	--	--	--	--	--
Hackberry	2.8	0.8	0.3	--	0.9	0.3	0.2	0.3	--	--	--	--	--
Willow	1.3	0.9	0.2	0.1	--	0.1	--	--	--	--	--	--	--
Other eastern hardwoods	60.5	19.6	16.0	10.6	7.5	2.9	2.5	0.6	0.6	0.2	--	--	--
Total hardwoods	1,126.5	124.4	142.1	158.5	148.1	138.0	104.7	85.1	60.4	112.9	52.3	52.3	52.3
All species	2,257.4	288.6	368.8	391.6	349.8	278.8	185.6	123.5	78.0	135.8	56.9	56.9	56.9

^{1/} Swamp chestnut oak.^{2/} Shumard oak.

Table 16.--Volume of growing stock on commercial forest land, by species and diameter class, 1970

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9			
Softwood:													
----- Million cubic feet -----													
Loblolly pine	1,074.4	1.6	16.4	32.1	32.6	20.1	12.7	2.8	1.1	--	--	--	--
Slash pine	2,451.1	24.8	41.7	45.2	40.8	40.8	20.5	9.3	4.7	2.3	--	--	--
Loblolly pine	11.8	0.7	4.0	1.5	2.9	0.8	0.9	1.5	0.6	1.9	--	--	--
Pond pine	33.1	2.8	5.5	5.3	6.3	5.3	3.6	2.1	1.2	0.7	--	0.3	--
Sand pine	46.2	10.8	15.6	10.2	5.0	2.8	1.6	0.2	--	--	--	--	--
Baldcypress	207.7	20.3	26.7	33.0	39.9	30.9	20.1	14.7	5.6	13.7	--	2.8	--
Pondcypress	433.9	85.2	112.2	96.9	70.1	36.6	20.3	6.4	4.0	2.0	--	0.2	--
Atlantic white cedar	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	5.2	0.9	0.5	0.4	1.2	0.7	1.0	--	--	0.5	--	--	--
Total softwoods	1,035.4	155.1	219.6	224.6	198.8	138.0	80.7	37.0	17.2	21.1	--	3.3	--
Hardwood:													
Select white oaks ^{1/}	1.7	--	--	--	0.4	0.2	--	0.5	0.3	0.3	--	--	--
Select red oaks ^{2/}	0.8	--	--	0.2	--	--	--	--	--	0.4	--	0.2	--
Other white oaks	88.4	1.0	2.2	3.5	2.4	4.3	8.4	7.1	9.1	29.9	--	20.5	--
Other red oaks	127.9	7.4	11.3	13.9	12.7	15.4	13.3	16.3	10.6	18.5	--	8.5	--
Hickory	15.3	0.5	0.7	2.1	3.8	1.3	2.4	2.7	0.7	1.4	--	0.7	--
Florida maple	1.3	--	0.1	0.6	0.4	0.2	--	--	--	--	--	--	--
Soft maple	110.4	10.7	15.6	16.9	19.7	15.2	10.6	8.6	5.5	7.0	--	0.6	--
Sweetgum	79.2	5.5	9.5	13.4	11.3	14.7	6.5	9.0	3.3	5.2	--	0.8	--
Tupelo and blackgum	137.7	12.1	19.8	22.7	21.5	18.4	15.0	8.9	8.7	9.6	--	1.0	--
Ash	24.7	11.2	11.8	20.1	14.7	16.1	9.9	5.4	2.0	2.2	--	0.7	--
Bay and magnolia	87.4	16.2	14.3	14.3	11.6	12.2	7.1	3.9	1.9	3.0	--	2.2	--
Basswood	0.2	--	--	1.1	0.3	--	1.2	--	0.3	--	--	--	--
Yellow-poplar	1.6	--	--	--	--	--	--	0.3	0.3	1.0	--	--	--
Elm	22.1	2.3	2.9	1.8	3.8	3.2	2.4	1.1	2.5	1.7	--	0.4	--
Black cherry	0.5	0.2	--	0.1	--	--	--	0.2	--	--	--	--	--
Hackberry	1.8	0.7	0.1	--	0.7	--	--	0.3	--	--	--	--	--
Willow	--	0.1	0.1	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	1.2	0.2	0.5	0.4	0.5	0.3	--	--	--	--	--	--	--
Total hardwoods	775.8	69.5	88.9	111.0	102.8	101.5	76.8	64.3	45.2	80.2	--	35.6	--
All species	1,871.2	224.6	308.5	335.6	301.6	239.5	157.5	101.3	62.4	101.3	--	38.9	--

^{1/} Swamp chestnut oak.^{2/} Shumard oak.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1970

Species	Diameter class (inches at breast height)											29.0 and larger
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9					
Million board feet												
Softwood:												
Longleaf pine	506.7	146.6	167.5	104.9	66.5	15.3	5.9	--	--	--	--	--
Slash pine	782.9	185.8	195.4	210.2	107.6	48.4	23.1	12.4	--	--	--	--
Loblolly pine	49.3	5.4	13.4	4.3	4.6	8.1	3.1	10.4	--	--	--	--
Pond pine	115.0	26.1	28.5	26.9	17.8	10.4	6.1	3.7	--	--	--	--
Sand pine	86.3	42.8	21.6	13.1	7.7	1.1	--	--	--	--	--	--
Baldcypress	758.2	122.9	183.9	157.8	107.9	76.6	28.9	67.1	--	--	--	--
Pondcypress	1,084.9	411.8	328.9	179.2	102.5	32.2	19.3	9.7	--	--	--	--
Atlantic white cedar	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	17.5	1.6	5.4	3.1	4.8	--	--	2.6	--	--	--	--
Total softwoods	3,400.8	937.0	944.6	699.5	419.4	192.1	86.4	105.9	--	--	--	--
Hardwood:												
Select white oaks ^{1/}	8.3	--	2.0	0.9	--	2.7	1.3	1.4	--	--	--	--
Select red oaks ^{2/}	3.2	--	--	--	--	--	--	2.0	--	--	--	--
Other white oaks	340.4	--	7.7	15.5	34.9	28.4	36.8	126.0	--	--	--	--
Other red oaks	398.6	--	50.0	62.7	55.1	70.2	44.2	79.1	--	--	--	--
Hickory	54.5	--	10.0	5.5	12.4	11.9	3.5	7.2	--	--	--	--
Florida maple	3.0	--	2.1	0.9	--	--	--	--	--	--	--	--
Soft maple	307.2	--	79.7	66.4	50.1	43.8	28.5	35.6	--	--	--	--
Sweetgum	241.9	--	44.2	71.0	32.6	46.7	15.7	27.4	--	--	--	--
Tupelo and blackgum	364.3	--	86.9	79.5	68.8	41.6	39.8	43.3	--	--	--	--
Ash	220.6	--	57.5	70.5	44.4	25.4	9.5	10.0	--	--	--	--
Bay and magnolia	174.5	--	46.9	50.9	30.3	16.2	7.9	1.0	--	--	--	--
Basswood	7.6	--	1.4	--	4.0	--	1.3	--	--	--	--	--
Yellow-poplar	8.8	--	--	--	--	1.0	1.8	5.4	--	--	--	--
Elm	61.2	--	14.2	13.1	9.1	5.4	10.9	7.0	--	--	--	--
Black cherry	1.1	--	--	--	--	1.1	--	--	--	--	--	--
Hackberry	4.1	--	2.9	--	--	1.2	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	2,202.5	--	407.3	438.3	342.6	296.6	201.2	357.4	--	--	--	--
All species	5,603.3	937.0	1,351.9	1,137.8	762.0	488.7	287.6	463.3	--	--	--	--

^{1/} Swamp chestnut oak.^{2/} Shumard oak.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1969

Species	Net annual growth	Annual timber removals
- - - - <u>Million cubic feet</u> - - - -		
Softwood:		
Yellow pines	33.1	22.2
Cypress	18.7	10.5
Other eastern softwoods	0.1	0.1
Total softwoods	51.9	32.8
Hardwood:		
Select white and red oaks	0.1	--
Other white and red oaks	8.1	5.2
Hickory	0.6	0.4
Hard maple	<u>1</u> /	--
Sweetgum	2.9	2.6
Ash, walnut, and black cherry	3.1	1.0
Yellow-poplar	0.1	--
Other eastern hardwoods	16.4	6.2
Total hardwoods	31.3	15.4
All species	83.2	48.2

1/ Negligible.

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1969

Species	: Net annual growth :	: Annual timber removals
- - - - <u>Million board feet</u> - - - -		
Softwood:		
Yellow pines	111.3	70.0
Cypress	71.9	43.5
Other eastern softwoods	0.6	0.3
Total softwoods	183.8	113.8
Hardwood:		
Select white and red oaks	0.3	--
Other white and red oaks	30.9	16.5
Hickory	3.6	2.2
Hard maple	0.5	--
Sweetgum	13.1	11.1
Ash, walnut, and black cherry	11.9	3.2
Yellow-poplar	0.3	--
Other eastern hardwoods	57.9	16.4
Total hardwoods	118.5	49.4
All species	302.3	163.2

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1969

Species	Growing stock	Sawtimber
	<u>Million cubic feet</u>	<u>Million board feet</u>
Softwood:		
Yellow pines	6.2	17.0
Cypress	1.1	1.9
Other eastern softwoods	--	--
Total softwoods	7.3	18.9
Hardwood:		
Select white and red oaks	--	--
Other white and red oaks	3.9	11.6
Hickory	--	--
Hard maple	--	--
Sweetgum	0.6	1.6
Ash, walnut, and black cherry	0.5	0.6
Yellow-poplar	--	--
Other eastern hardwoods	7.7	20.2
Total hardwoods	12.7	34.0
All species	20.0	52.9

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1970

Ownership class	All live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	-	-	-	-	-	Million cubic feet				
National Forest	50.3	32.0	--	7.7	10.6	45.9	32.0	--	7.6	6.3
Other public	181.1	45.9	71.5	27.0	36.7	152.8	45.6	69.7	23.1	14.4
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	675.0	137.9	225.8	140.3	171.0	572.3	136.4	216.3	119.1	100.5
Miscellaneous private	1,351.0	237.3	380.5	353.9	379.3	1,100.2	234.6	360.8	293.9	210.2
All ownerships	2,257.4	453.1	677.8	528.9	597.6	1,871.2	448.6	646.8	443.7	321.1

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1970

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
						Million board feet				
National Forest	97.3	82.6	--	6.8	7.9	51.6	28.3	--	10.7	12.6
Other public	362.2	155.9	167.3	25.4	13.6	171.2	37.0	56.7	39.4	38.1
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	1,069.5	379.4	432.2	153.5	104.4	646.2	97.8	162.1	150.6	205.7
Miscellaneous private	1,897.7	568.6	795.1	371.3	162.7	1,307.6	190.6	247.2	412.9	456.2
All ownerships	3,426.7	1,186.5	1,394.6	557.0	288.6	2,176.6	353.7	466.0	613.6	743.3

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1969

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
						Million cubic feet				
National Forest	3.0	2.4	--	0.3	0.3	--	--	--	--	--
Other public	6.0	3.0	1.7	0.8	0.5	4.6	3.8	--	--	0.8
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	24.9	9.2	6.7	5.7	3.3	17.4	6.3	4.9	3.8	2.4
Miscellaneous private	49.3	18.5	10.4	12.5	7.9	26.2	12.1	5.7	5.1	3.3
All ownerships	83.2	33.1	18.8	19.3	12.0	48.2	22.2	10.6	8.9	6.5

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1969

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
						Million board feet				
National Forest	10.0	7.6	--	1.2	1.2	--	--	--	--	--
Other public	25.2	11.2	7.9	3.8	2.3	12.4	11.3	--	--	1.1
Forest industry	--	--	--	--	--	--	--	--	--	--
Farmer	96.7	37.0	24.0	20.0	15.7	63.6	22.9	20.4	11.8	8.5
Miscellaneous private	170.4	55.5	40.6	46.3	28.0	87.2	35.8	23.4	15.7	12.3
All ownerships	302.3	111.3	72.5	11.3	47.2	163.2	70.0	43.8	27.5	21.9

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1970

Forest type, species group, and class of material	All ownerships		Ownership class									
			National Forest		Other public		Forest industry		Farmer		Misc. private	
	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Needle types:												
Growing stock:												
Softwood	1,219	369	1,680	507	1,652	417	--	--	1,259	376	1,075	342
Hardwood	22	12	13	22	12	5	--	--	29	11	21	13
Total	1,241	381	1,693	529	1,664	422	--	--	1,288	387	1,096	355
Other timber:												
Softwood	--	4	--	--	--	1	--	--	--	3	--	5
Hardwood	--	20	--	40	--	24	--	--	--	18	--	18
Total	--	24	--	40	--	25	--	--	--	21	--	23
Oak-pine type:												
Growing stock:												
Softwood	1,179	323	1,952	482	1,093	285	--	--	1,568	375	776	297
Hardwood	220	89	301	235	--	--	--	--	263	112	217	86
Total	1,399	412	2,253	717	1,093	285	--	--	1,831	487	1,213	383
Other timber:												
Softwood	--	4	--	--	--	6	--	--	--	5	--	4
Hardwood	--	113	--	116	--	53	--	--	--	100	--	130
Total	--	117	--	116	--	59	--	--	--	105	--	134
Upland hardwood types:												
Growing stock:												
Softwood	130	37	--	--	200	49	--	--	146	44	116	33
Hardwood	628	178	--	--	61	17	--	--	1,008	283	602	171
Total	758	215	--	--	261	66	--	--	1,154	327	718	204
Other timber:												
Softwood	--	1	--	--	--	--	--	--	--	1	--	1
Hardwood	--	155	--	--	--	176	--	--	--	204	--	138
Total	--	156	--	--	--	176	--	--	--	205	--	139
Bottomland hardwood types:												
Growing stock:												
Softwood	1,762	601	757	142	3,575	1,056	--	--	1,779	640	1,594	544
Hardwood	1,704	612	4,566	1,438	1,755	565	--	--	1,543	539	1,748	644
Total	3,466	1,213	5,323	1,580	5,330	1,621	--	--	3,322	1,179	3,342	1,188
Other timber:												
Softwood	--	28	--	--	--	28	--	--	--	29	--	28
Hardwood	--	221	--	177	--	229	--	--	--	182	--	240
Total	--	249	--	177	--	257	--	--	--	211	--	268
Loblolly types:												
Growing stock:												
Softwood	1,256	404	1,550	447	1,847	511	--	--	1,370	451	1,106	366
Hardwood	813	286	532	195	516	166	--	--	824	281	862	310
Total	2,069	690	2,082	642	2,363	677	--	--	2,194	732	1,968	676
Other timber:												
Softwood	--	13	--	--	--	9	--	--	--	14	--	14
Hardwood	--	130	--	61	--	116	--	--	--	117	--	140
Total	--	143	--	61	--	125	--	--	--	131	--	154
Total loblolly	2,069	833	2,082	703	2,363	802	--	--	2,194	863	1,968	830

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type, and survey completion date, 1949, 1959, and 1970

Land use class	Survey completion date			Change 1959-1970
	1949	1959 ^{2/}	1970	
- - - - - <u>Thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	3,905.8	2,943.7	1,170.4	-1,773.3
Hardwood types	1,841.4	2,018.0	1,537.6	- 480.4
Total	5,747.2	4,961.7	2,708.0	-2,253.7
Noncommercial forest land:				
Productive-reserved	11.9	21.9	23.7	+ 1.8
Unproductive	220.1	111.1	100.8	- 10.3
Total	232.0	133.0	124.5	- 8.5
Nonforest land:				
Cropland	844.0	1,201.8	1,304.4	+ 102.6
Pasture and range	526.5	1,256.2	3,829.8	+2,573.6
Other	2,429.3	2,346.8	2,090.6	- 256.2
Total	3,799.8	4,804.8	7,224.8	+2,420.0
All land ^{1/}	9,779.0	9,899.5	10,057.3	+ 157.8

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revisions in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)									
			5.0-	7.0-	9.0-	11.0-	13.0-	15.0-	17.0-	19.0-	21.0 and larger	
			6.9	8.9	10.9	12.9	14.9	16.9	18.9	20.9		
SAWTIMBER (in million board feet)												
Softwood	1949	2,744.5	--	--	917.0	845.2	497.7	244.1	75.6	48.7	116.2	
	1959	2,554.2	--	--	751.5	711.9	479.4	300.7	158.9	68.4	83.4	
	1970	3,400.8	--	--	937.0	944.6	699.5	419.4	192.1	86.4	121.8	
Hardwood	1949	1,867.4	--	--	--	385.1	357.9	270.5	210.5	187.9	455.5	
	1959	1,706.2	--	--	--	388.7	331.6	255.3	202.5	154.2	373.9	
	1970	2,202.5	--	--	--	407.3	438.3	342.6	296.6	201.2	516.5	
GROWING STOCK (in million cubic feet)												
Softwood	1949	924.0	125.0	208.6	219.7	177.9	98.2	47.0	14.6	9.7	23.3	
	1959	877.0	135.4	198.2	180.1	149.9	94.6	57.9	30.6	13.6	16.7	
	1970	1,095.4	155.1	219.6	224.6	198.8	138.0	80.7	37.0	17.2	24.4	
Hardwood	1949	685.0	76.3	84.3	93.7	97.2	82.9	60.6	45.7	42.2	102.1	
	1959	630.0	64.6	80.6	90.2	98.1	76.9	57.2	44.0	34.6	83.8	
	1970	775.8	69.5	88.9	111.0	102.8	101.5	76.8	64.3	45.2	115.8	
ALL LIVE TIMBER (in million cubic feet)												
Softwood	1949	955.0	132.5	215.4	228.1	180.4	100.2	47.1	15.1	9.9	26.3	
	1959	906.1	143.6	204.6	186.9	152.0	96.5	58.0	31.8	13.9	18.8	
	1970	1,130.9	164.2	226.7	233.1	201.7	140.8	80.9	38.4	17.6	27.5	
Hardwood	1949	1,003.2	137.0	134.7	133.7	140.0	112.7	82.7	60.4	56.4	145.6	
	1959	921.4	116.0	128.9	128.7	141.3	104.4	78.1	58.1	46.3	119.6	
	1970	1,126.5	124.4	142.1	158.5	148.1	138.0	104.7	85.1	60.4	165.2	

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

SOUTHERN PULPWOOD PRODUCTION, 1969

Richard L. Welch



Forest Service, U. S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

October 1970

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SOUTHEASTERN FOREST EXPERIMENT STATION

Asheville, North Carolina

and

SOUTHERN FOREST EXPERIMENT STATION

New Orleans, Louisiana

of the

**Forest Service, U. S. Department of
Agriculture**

in cooperation with the

AMERICAN PULPWOOD ASSOCIATION

1970

SOUTHERN PULPWOOD PRODUCTION, 1969

Richard L. Welch

Resource Analyst

PULPWOOD PRODUCTION IN THE SOUTH increased more in 1969 than in any previous year in the history of the region — 3,793,600 cords. Production climbed to 40,868,990 cords, which was two-thirds of the Nation's total. Within the region, more pulpwood was produced in the Midsouth than in the Southeast for the first time in at least the past 30 years. Altogether, the South supplied wood to 121 mills. Of these, 105 are in the region and have a combined daily pulping capacity of 80,980 tons.

In 1969—

—**pulpwood production** in the South totaled 40,868,990 cords, up 10 percent from 1968. For the first time since 1951, production in each of the 12 States increased over the preceding year. Production in Mississippi jumped by 1,116,800 cords, shattering a record established only a year earlier in that State for the greatest annual increase ever recorded in a Southern State. Georgia, with 7,303,500 cords, was once again the South's leading producer (table 1).

—**roundwood production** increased to 32,510,648 cords and accounted for 80 percent of the total production. About 75 percent of the roundwood was softwood, primarily southern yellow pine. The remaining 25 percent was hardwood, the highest proportion ever. An estimated 38 percent of the hardwood was oak, 34 percent was gum, and the remaining 28 percent was a mixture of other species (table 2).

—**gains in roundwood production** were largest in Mississippi and Louisiana, and over 63 percent of the increase occurred in the seven Midsouth States. Production of hardwood roundwood declined in Florida and South Carolina, while softwood roundwood declined only in Virginia. In fact, production of softwood

roundwood in Virginia declined for the fourth consecutive year and is now 30 percent below 1965 production (table 3).

—**volume of wood residues** provided for the manufacture of pulp increased to the equivalent of 8,358,342 cords, up 10 percent from 1968. Production of residues was up in all the States except Florida and Virginia. Alabama was the leading producer with the equivalent of 1,243,000 cords (table 4). Over 93 percent of the residue material was received at the



pulpmills in the form of chips (table 5). Residues are defined as remnants of some other manufacturing process; however, there is growing concern, now based on some evidence, that an undetermined amount of the "chipped residues" are in fact coming from chipped roundwood. Until resolved, users of these data should be aware of the problem.

—*daily pulping capacity* of the 105 southern mills totaled 80,980 tons, up 5 percent from 1968. The largest increase in capacity, 20 per-

cent, was in Louisiana. Georgia still leads the region with 13,478 tons. In addition to the 105 southern mills, 16 mills from outside the South drew wood from the region's forests (tables 6 and 20).

—*production in the Midsouth* surpassed that in the Southeast for the first time in at least 30 years. When both roundwood and residues are included, production in the Midsouth jumped to 21,080,306 cords, or 14 percent. Production in the Southeast increased to 19,788,684 cords, or 6 percent. Production of softwood was about evenly distributed between the two areas; however, almost 58 percent of the hardwood was produced in the Midsouth (table 7).

—*the three leading counties* in roundwood production were Washington and Baldwin Counties in Alabama and Wayne County in Georgia, all with over 193,000 cords. Production exceeded 100,000 cords in 62 counties compared to only 49 counties in 1968 (tables 8 through 19).

—*five new mills* were under construction in the South, three in the Southeast and two in the Midsouth. Completion of these mills will add 1,580 tons to the daily pulping capacity (table 21).

Table 1.—*Pulpwood production in the South during 1969, and change since 1968*

State	Pulpwood	Change
	Thousand cords	Percent
Alabama	6,378.7	+ 4
Arkansas	2,579.0	+12
Florida	3,446.1	+ 6
Georgia	7,303.5	+ 6
Louisiana	3,596.3	+19
Mississippi	5,071.3	+28
North Carolina	3,516.9	+11
Oklahoma	190.7	+23
South Carolina	3,112.4	+ 7
Tennessee	430.3	+ 3
Texas	2,834.0	+12
Virginia	2,409.8	+ 2
All States	40,869.0	+10

Table 2.—*Roundwood production in the South, by State and species group, 1969*

State	All species	Softwood	Hardwood			
			Total	Gums	Oaks	Other hardwoods
— — — — — — — — — — <i>Thousand cords</i> — — — — — — — — — —						
Alabama	5,135.7	3,556.6	1,579.1	573.6	564.9	440.6
Arkansas	1,743.0	1,121.8	621.2	146.5	338.0	136.7
Florida	3,020.7	2,752.2	268.5	70.1	115.5	82.9
Georgia	6,108.5	5,385.4	723.1	337.6	253.9	131.6
Louisiana	2,719.5	1,947.9	771.6	270.7	202.5	298.4
Mississippi	4,128.6	3,023.5	1,105.1	362.4	356.6	386.1
North Carolina	2,829.9	1,910.1	919.8	380.4	333.9	205.5
Oklahoma	117.0	55.0	62.0	6.9	16.9	38.2
South Carolina	2,504.8	1,884.2	620.6	268.3	211.4	140.9
Tennessee	364.7	167.9	196.8	19.2	131.4	46.2
Texas	2,008.0	1,654.5	353.5	104.6	183.2	65.7
Virginia	1,830.2	996.4	833.8	174.9	378.2	280.7
All States	32,510.6	24,455.5	8,055.1	2,715.2	3,086.4	2,253.5

Table 3.—Roundwood production in the South, by State and species group, 1969 and 1968

State	Change from 1968	1969			1968		
		All species	Softwood	Hardwood	All species	Softwood	Hardwood
	<i>Percent</i>	<i>— — — — — Thousand cords — — — — —</i>					
Alabama	+ 2	5,135.7	3,556.6	1,579.1	5,046.4	3,549.4	1,497.0
Arkansas	+14	1,743.0	1,121.8	621.2	1,532.2	1,011.9	520.3
Florida	+ 8	3,020.7	2,752.2	268.5	2,808.6	2,512.0	296.6
Georgia	+ 5	6,108.5	5,385.4	723.1	5,792.2	5,108.7	683.5
Louisiana	+20	2,719.5	1,947.9	771.6	2,274.7	1,659.1	615.6
Mississippi	+29	4,128.6	3,023.5	1,105.1	3,197.9	2,263.8	934.1
North Carolina	+14	2,829.9	1,910.1	919.8	2,490.3	1,730.8	759.5
Oklahoma	+30	117.0	55.0	62.0	89.8	40.0	49.8
South Carolina	+ 6	2,504.8	1,884.2	620.6	2,371.9	1,724.3	647.6
Tennessee	+ 4	364.7	167.9	196.8	351.6	159.7	191.9
Texas	+10	2,008.0	1,654.5	353.5	1,818.6	1,507.5	311.1
Virginia	+ 6	1,830.2	996.4	833.8	1,726.5	1,055.0	671.5
All States	+10	32,510.6	24,455.5	8,055.1	29,500.7	22,322.2	7,178.5

Table 4.—Southern output of wood residues for pulp manufacture, by State and species group, 1969 and 1968

State	Change from 1968	1969			1968		
		All species	Softwood	Hardwood	All species	Softwood	Hardwood
	<i>Percent</i>	<i>— — — — — Thousand cords — — — — —</i>					
Alabama	+15	1,243.0	964.7	278.3	1,084.7	866.6	218.1
Arkansas	+ 9	836.0	688.6	147.4	765.5	659.3	106.2
Florida	- 2	425.4	330.3	95.1	434.9	344.7	90.2
Georgia	+ 6	1,195.0	1,013.4	181.6	1,127.1	967.1	160.0
Louisiana	+19	876.8	707.9	168.9	736.8	623.7	113.1
Mississippi	+25	942.7	678.2	264.5	756.6	579.2	177.4
North Carolina	+ 3	687.0	531.3	155.7	665.9	528.0	137.9
Oklahoma	+13	73.7	70.4	3.3	65.5	63.4	2.1
South Carolina	+16	607.6	471.7	135.9	525.4	393.3	132.1
Tennessee	(1)	65.6	12.8	52.8	65.4	9.8	55.6
Texas	+18	826.0	785.6	40.4	701.4	668.2	33.2
Virginia	-10	579.6	391.7	187.9	645.5	438.3	207.2
All States	+10	8,358.4	6,646.6	1,711.8	7,574.7	6,141.6	1,433.1

(1) Less than 0.5 percent.

Table 5.—Southern output of wood residues for pulp manufacture, by State and type of residue, 1969

State	All types	Chips			Other residues ¹		
		All species	Softwood	Hardwood	All species	Softwood	Hardwood
— — — — — <i>Thousand cords</i> — — — — —							
Alabama	1,243.0	1,177.2	902.9	274.3	65.8	61.8	4.0
Arkansas	836.0	786.7	656.3	130.4	49.3	32.3	17.0
Florida	425.4	425.4	330.3	95.1	...	...	...
Georgia	1,195.0	1,188.3	1,010.7	177.6	6.7	2.7	4.0
Louisiana	876.8	786.1	642.4	143.7	90.7	65.5	25.2
Mississippi	942.7	872.9	628.5	244.4	69.8	49.7	20.1
North Carolina	687.0	648.4	507.2	141.2	38.6	24.1	14.5
Oklahoma	73.7	73.7	70.4	3.3	...	...	...
South Carolina	607.6	577.8	445.6	132.2	29.8	26.1	3.7
Tennessee	65.6	65.6	12.8	52.8	...	...	...
Texas	826.0	679.0	638.7	40.3	147.0	146.9	0.1
Virginia	579.6	540.6	360.6	180.0	39.0	31.1	7.9
All States	8,358.4	7,821.7	6,206.4	1,615.3	536.7	440.2	96.5

¹ Veneer cores, pole and piling trim, cull crossies, sawdust, and secondary residues.

Table 6.—Pulping capacity in the South, by State, 1969 and 1968

State	Change from 1968	Pulping capacity, 24 hours	
		1969	1968
<i>Percent</i> <i>— Tons —</i>			
Alabama	+ 5	11,168	10,668
Arkansas	+ 5	4,305	4,113
Florida	(1)	9,048	9,023
Georgia	(1)	13,478	13,366
Louisiana	+20	10,295	8,600
Mississippi	— 4	6,050	6,310
North Carolina	+17	5,820	4,960
Oklahoma	+ 6	495	465
South Carolina	(1)	6,244	6,200
Tennessee	+15	3,220	2,805
Texas	0	5,500	5,500
Virginia	+ 4	5,357	5,130
All States	+ 5	80,980	77,140

¹ Less than 1 percent increase.

Table 7.—Southern pulpwood production by Experiment Station territory, 1969

Station and source of wood	All species	Softwood	Hardwood
— — — Standard cords — — —			
Southeastern:			
Roundwood	16,294,109	12,928,321	3,365,788
Residues	3,494,575	2,738,376	756,199
Total	19,788,684	15,666,697	4,121,987
Southern:			
Roundwood	16,216,539	11,527,206	4,689,333
Residues	4,863,767	3,908,188	955,579
Total	21,080,306	15,435,394	5,644,912
Both stations:			
Roundwood	32,510,648	24,455,527	8,055,121
Residues	8,358,342	6,646,564	1,711,778
Total	40,868,990	31,102,091	9,766,899

Table 8.—Round pulpwood production in Alabama, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Autauga	59,092	32,587	26,505	Jackson	6,981	4,038	2,943
Baldwin	196,229	148,533	47,696	Jefferson	43,514	41,160	2,354
Barbour	98,384	63,243	35,141	Lamar	39,133	38,064	1,069
Bibb	76,595	60,174	16,421	Lauderdale	5,724	4,501	1,223
Blount	30,610	30,549	61	Lawrence	454	454	...
Bullock	41,876	37,576	4,300	Lee	108,486	99,995	8,491
Butler	181,428	100,100	81,328	Limestone	1,293	1,293	...
Calhoun	45,913	39,573	6,340	Lowndes	63,007	41,238	21,769
Chambers	74,773	50,703	24,070	Macon	57,889	46,626	11,263
Cherokee	29,003	24,583	4,420	Madison	511	511	...
Chilton	80,788	57,848	22,940	Marengo	160,630	76,518	84,112
Choctaw	192,357	92,161	100,196	Marion	42,121	40,601	1,520
Clarke	163,966	69,726	94,240	Marshall	16,960	16,919	41
Clay	65,120	44,431	20,689	Mobile	118,886	86,723	32,163
Cleburne	56,095	46,271	9,824	Monroe	192,863	119,289	73,574
Coffee	66,385	44,242	22,143	Montgomery	75,849	42,574	33,275
Colbert	5,848	5,422	426	Morgan	872	872	...
Conecuh	156,616	113,374	43,242	Perry	68,525	44,016	24,509
Coosa	117,587	85,849	31,738	Pickens	86,096	51,697	34,399
Covington	104,838	74,555	30,283	Pike	89,681	64,257	25,424
Crenshaw	78,969	51,373	27,596	Randolph	97,492	83,979	13,513
Cullman	50,213	48,355	1,858	Russell	88,567	82,950	5,617
Dale	91,572	39,275	52,297	St. Clair	55,824	51,256	4,568
Dallas	120,076	56,364	63,712	Shelby	87,954	67,846	20,108
De Kalb	11,050	8,732	2,318	Sumter	122,731	56,511	66,220
Elmore	64,650	56,851	7,799	Talledega	60,204	50,634	9,570
Escambia	163,463	138,135	25,328	Tallapoosa	172,111	129,273	42,838
Etowah	26,515	24,347	2,168	Tuscaloosa	68,258	59,472	8,786
Fayette	37,405	32,330	5,075	Walker	56,369	52,485	3,884
Franklin	16,884	16,631	253	Washington	197,076	123,277	73,799
Geneva	42,296	26,226	16,070	Wilcox	139,717	83,343	56,374
Greene	63,239	38,148	25,091	Winston	37,215	35,064	2,151
Hale	50,996	33,547	17,449	All counties	5,135,721	3,556,619	1,579,102
Henry	69,657	39,119	30,538				
Houston	42,240	28,250	13,990				

Table 9.—Round pulpwood production in Arkansas, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Arkansas	10	10	...	Lincoln	14,952	2,321	12,631
Ashley	181,114	110,261	70,853	Little River	33,303	27,231	6,072
Baxter	...	...	...	Logan	13,612	12,077	1,535
Benton	...	...	...	Lonoke	2,651	108	2,543
Boone	...	...	...	Madison	...	...	...
Bradley	9,892	4,169	5,723	Marion	...	...	...
Calhoun	63,011	44,853	18,158	Miller	18,993	10,523	8,470
Carroll	...	...	...	Mississippi	590	...	590
Chicot	6,482	12	6,470	Monroe	...	...	...
Clark	67,672	48,738	18,934	Montgomery	28,430	20,791	7,639
Clay	...	...	...	Nevada	66,272	50,898	15,374
Cleburne	22,793	19,193	3,600	Newton	30	12	18
Cleveland	31,935	19,435	12,500	Ouachita	47,157	33,539	13,618
Columbia	72,589	54,388	18,201	Perry	6,829	5,584	1,245
Conway	28,865	23,445	5,420	Phillips	16,298	...	16,298
Craighead	10	...	10	Pike	47,385	38,723	8,662
Crawford	3,042	557	2,485	Poinsett	...	...	...
Crittenden	267	...	267	Polk	36,001	26,288	9,713
Cross	...	...	...	Pope	21,059	16,397	4,662
Dallas	92,248	65,136	27,112	Prairie	1,837	...	1,837
Desha	12,554	31	12,523	Pulaski	8,454	5,875	2,579
Drew	67,067	27,112	39,955	Randolph	...	...	...
Faulkner	179	2	177	St. Francis	3,379	29	3,350
Franklin	1,487	1,277	210	Saline	43,459	22,440	21,019
Fulton	...	...	...	Scott	12,594	8,810	3,784
Garland	15,114	10,569	4,545	Searcy	...	...	...
Grant	135,225	70,866	64,359	Sebastian	950	950	...
Greene	...	...	...	Sevier	57,901	36,037	21,864
Hempstead	42,162	33,829	8,333	Sharp	...	...	...
Hot Spring	40,574	26,869	13,705	Stone	2,215	2,084	131
Howard	35,318	29,443	5,875	Union	87,630	62,961	24,669
Independence	13,138	6,482	6,656	Van Buren	28,097	24,790	3,307
Izard	4,205	3,701	504	Washington	...	...	...
Jackson	1,210	328	882	White	15,854	3,219	12,635
Jefferson	61,337	36,882	24,455	Woodruff	3,513	...	3,513
Johnson	13,245	9,741	3,504	Yell	40,422	29,330	11,092
Lafayette	54,515	33,220	21,295	All counties	1,743,003	1,121,784	621,219
Lawrence	...	...	...				
Lee	5,876	218	5,658				

Table 10.—Round pulpwood production in Florida, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Alachua	115,184	94,904	20,280	Lake	7,914	7,914	...
Baker	99,750	99,730	20	Lee	5,229	5,229	...
Bay	35,704	35,704	...	Leon	35,986	35,517	469
Bradford	68,807	67,757	1,050	Levy	74,006	54,500	19,506
Brevard	9,152	9,152	...	Liberty	89,367	75,911	13,456
Broward	...	...	...	Madison	96,562	92,059	4,503
Calhoun	85,826	80,169	5,657	Manatee	2,926	2,688	238
Charlotte	4,621	4,621	...	Marion	99,574	92,114	7,460
Citrus	3,420	3,420	...	Martin	806	806	...
Clay	97,017	95,566	1,451	Monroe	...	...	...
Collier	6,506	6,506	...	Nassau	140,125	134,214	5,911
Columbia	116,268	112,166	4,102	Okaloosa	21,888	18,162	3,726
Dade	2,336	2,336	...	Okeechobee	1,924	1,924	...
De Soto	1,996	1,996	...	Orange	472	472	...
Dixie	111,580	77,807	33,773	Osceola	5,303	5,303	...
Duval	75,044	73,073	1,971	Palm Beach	1,222	1,222	...
Escambia	70,800	68,121	2,679	Pasco	4,306	4,306	...
Flagler	40,139	36,999	3,140	Pinellas	434	434	...
Franklin	52,019	51,471	548	Polk	26,850	26,850	...
Gadsden	48,709	45,330	3,379	Putnam	59,358	45,823	13,535
Gilchrist	30,644	24,891	5,753	St. Johns	69,601	63,255	6,346
Glades	2,197	2,197	...	St. Lucie	1,102	1,098	4
Gulf	30,334	22,553	7,781	Santa Rosa	87,881	86,363	1,518
Hamilton	94,074	93,813	261	Sarasota	6,176	6,176	...
Hardee	10,358	10,198	160	Seminole	13,347	13,347	...
Hendry	15,125	15,125	...	Sumter	7,097	7,097	...
Hernando	13,501	8,802	4,699	Suwannee	36,900	27,473	9,427
Highlands	6,843	6,843	...	Taylor	176,498	174,350	2,148
Hillsborough	8,717	8,717	...	Union	48,105	47,983	122
Holmes	93,455	78,479	14,976	Volusia	68,432	66,302	2,130
Indian River	174	174	...	Wakulla	40,573	39,615	958
Jackson	97,347	68,674	28,673	Walton	82,263	65,677	16,586
Jefferson	62,385	57,998	4,387	Washington	89,534	74,477	15,057
Lafayette	108,882	108,282	600	All counties	3,020,675	2,752,235	268,440

Table 11.—Round pulpwood production in Georgia, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Appling	124,885	118,346	6,539	Gordon	16,731	15,507	1,224
Atkinson	71,113	70,243	870	Grady	37,642	29,112	8,530
Bacon	52,946	51,857	1,089	Greene	71,094	57,500	13,594
Baker	29,308	21,411	7,897	Gwinnett	26,289	25,976	313
Baldwin	49,633	36,252	7,381	Habersham	14,137	8,693	5,444
Banks	16,419	15,621	798	Hall	19,011	17,732	1,279
Barrow	21,284	17,512	3,772	Hancock	68,080	52,387	15,693
Bartow	18,498	17,778	720	Haralson	25,349	22,598	2,751
Ben Hill	77,271	75,324	1,947	Harris	68,047	64,661	3,386
Berrien	75,399	66,597	8,802	Hart	1,352	1,280	72
Bibb	28,725	22,460	6,265	Heard	32,203	31,538	665
Bleckley	16,353	7,462	8,891	Henry	35,769	26,843	8,926
Brantley	177,337	163,440	13,897	Houston	29,340	25,865	3,475
Brooks	26,076	20,734	5,342	Irwin	6,226	4,702	1,524
Bryan	74,428	70,583	3,845	Jackson	23,150	22,503	647
Bulloch	45,737	43,702	2,035	Jasper	21,734	20,652	1,082
Burke	51,136	23,663	27,473	Jeff Davis	85,945	78,497	7,448
Butts	23,780	20,318	3,462	Jefferson	27,858	19,309	8,549
Calhoun	40,240	34,139	6,101	Jenkins	27,347	17,586	9,761
Camden	119,543	103,774	15,769	Johnson	40,987	25,784	15,203
Candler	17,206	14,298	2,908	Jones	48,671	44,258	4,413
Carroll	59,264	57,384	1,880	Lamar	15,582	14,106	1,476
Catoosa	6,515	5,467	1,048	Lanier	20,260	20,241	19
Charlton	93,479	90,232	3,247	Laurens	61,002	42,053	18,949
Chatham	19,412	17,997	1,415	Lee	11,296	10,778	518
Chattahoochee	33,138	27,832	5,306	Liberty	100,925	75,770	25,155
Chattooga	21,025	18,007	3,018	Lincoln	28,138	26,526	1,612
Cherokee	36,126	35,246	880	Long	54,492	50,997	3,495
Clarke	2,664	2,664	...	Lowndes	72,909	71,289	1,620
Clay	18,968	14,292	4,676	Lumpkin	4,106	4,106	...
Clayton	7,098	6,685	413	McDuffie	10,601	8,339	2,262
Clinch	156,141	156,058	83	McIntosh	78,425	74,333	4,092
Cobb	17,594	16,549	1,045	Macon	37,960	21,583	16,377
Coffee	96,373	93,750	2,623	Madison	11,057	10,142	915
Colquitt	36,405	30,218	6,187	Marion	28,117	24,431	3,686
Columbia	44,927	35,941	8,986	Meriwether	47,872	46,636	1,236
Cook	7,289	7,289	...	Miller	16,342	13,501	2,841
Coweta	58,380	56,379	2,001	Mitchell	45,993	41,551	4,442
Crawford	51,814	38,487	13,327	Monroe	64,899	58,096	6,803
Crisp	11,772	11,465	307	Montgomery	66,502	64,707	1,795
Dade	1,727	1,598	129	Morgan	19,162	15,584	3,578
Dawson	12,478	12,478	...	Murray	21,350	18,928	2,422
Decatur	47,560	40,880	6,680	Muscogee	10,332	9,719	613
De Kalb	1,571	1,568	3	Newton	26,862	25,098	1,764
Dodge	89,602	76,134	13,468	Oconee	11,138	8,017	3,121
Dooly	20,744	14,371	6,373	Oglethorpe	49,053	44,017	5,036
Dougherty	66,606	61,981	4,625	Paulding	30,096	25,586	4,510
Douglas	14,126	13,371	755	Peach	9,667	8,540	1,127
Early	26,606	21,806	4,800	Pickens	16,166	14,232	1,934
Echols	90,845	90,845	...	Pierce	39,540	38,228	1,312
Effingham	58,601	52,102	6,499	Pike	15,794	15,068	726
Elbert	34,403	32,123	2,280	Polk	31,292	27,853	3,439
Emanuel	82,806	78,084	4,722	Pulaski	22,580	19,295	3,285
Evans	29,937	26,658	3,279	Putnam	32,033	23,889	8,144
Fannin	9,892	4,345	5,547	Quitman	21,804	18,511	3,293
Fayette	8,361	7,921	440	Rabun	8,104	176	7,928
Floyd	31,813	26,485	5,328	Randolph	55,486	49,482	6,004
Forsyth	8,822	8,478	344	Richmond	13,693	9,270	4,423
Franklin	20,804	15,153	5,651	Rockdale	1,139	1,139	...
Fulton	16,226	16,116	110	Schley	13,777	11,993	1,784
Gilmer	10,218	8,816	1,402				
Glascok	1,807	1,507	300				
Glynn	83,645	59,038	24,607				

Table 11.—Round pulpwood production in Georgia, 1969 (Continued)

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Screven	54,887	42,008	12,879	Union	2,684	1,738	946
Seminole	10,135	7,353	2,782	Upson	36,954	33,378	3,576
Spalding	18,446	17,298	1,148				
Stephens	11,602	8,345	3,257	Walker	13,367	12,382	985
Stewart	78,646	72,218	6,428	Walton	20,082	17,521	2,561
Sumter	19,437	16,586	2,851	Ware	139,275	138,820	455
Talbot	68,069	61,871	6,198	Warren	26,764	22,954	3,810
Taliaferro	6,471	5,783	688	Washington	61,082	42,956	18,126
Tattnall	86,123	81,251	4,872	Wayne	193,183	177,837	15,346
Taylor	11,472	10,516	956	Webster	8,635	8,004	631
Telfair	57,830	47,997	9,833	Wheeler	29,041	25,866	3,175
Terrell	13,958	13,386	572	White	2,966	2,835	131
Thomas	38,625	30,132	8,493	Whitfield	19,826	18,316	1,510
Tift	16,209	14,759	1,450	Wilcox	31,376	29,398	1,978
Toombs	41,876	37,029	4,847	Wilkes	82,043	74,307	7,736
Towns	...	...	...	Wilkinson	51,079	38,728	12,351
Treutlen	23,483	22,142	1,341	Worth	48,361	46,244	2,117
Troup	70,114	64,803	5,311				
Turner	29,844	29,319	525				
Twiggs	33,114	25,190	7,924				
				All counties	6,108,468	5,385,377	723,091

Table 12.—Round pulpwood production in Louisiana, 1969

Parish	All species	Softwood	Hardwood	Parish	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Acadia	5,265	4,765	500	Madison	28,086	146	27,940
Allen	55,782	51,650	4,132	Morehouse	61,262	31,327	29,935
Ascension	21,521	4,554	16,967	Natchitoches	77,827	60,802	17,025
Assumption	...	...	...	Orleans	...	...	...
Avoyelles	30,344	2,583	27,761	Ouachita	58,334	40,098	18,236
Beauregard	107,769	97,925	9,844	Plaquemines	...	...	...
Bienville	145,415	111,636	33,779	Pointe Coupee	36,191	...	36,191
Bossier	70,999	48,866	22,133	Rapides	122,524	88,528	33,996
Caddo	40,423	30,114	10,309	Red River	32,780	24,900	7,880
Calcasieu	38,822	38,173	649	Richland	7,163	534	6,629
Caldwell	51,346	38,549	12,797	Sabine	114,318	98,572	15,746
Cameron	...	...	...	St. Bernard	...	...	...
Catahoula	42,528	24,383	18,145	St. Charles	...	...	...
Claiborne	68,194	49,605	18,589	St. Helena	66,525	48,017	18,508
Concordia	39,870	28	39,842	St. James	6	...	6
De Soto	87,985	76,399	11,586	St. John the Baptist	...	...	...
East Baton Rouge	12,789	2,844	9,945	St. Landry	37,560	6,207	31,353
East Carroll	18,088	5	18,083	St. Martin	1,729	...	1,729
East Feliciana	31,728	22,441	9,287	St. Mary	...	...	...
Evangeline	20,017	17,236	2,781	St. Tammany	55,007	52,463	2,544
Franklin	9,036	3,912	5,124	Tangipahoa	81,351	69,267	12,084
Grant	77,996	56,626	21,370	Tensas	13,728	31	13,697
Iberia	2	...	2	Terrebonne	...	...	...
Iberville	3,101	...	3,101	Union	189,531	130,181	59,350
Jackson	80,742	64,134	16,608	Vermilion	...	...	...
Jefferson	105	5	100	Vernon	136,980	119,980	17,000
Jefferson Davis	8,341	8,092	249	Washington	147,618	120,813	26,805
Lafayette	...	...	...	Webster	54,369	38,871	15,498
Lafourche	...	...	...	West Baton Rouge	842	...	842
La Salle	81,843	68,707	13,136	West Carroll	73	73	...
Lincoln	65,095	53,240	11,855	West Feliciana	9,292	4,217	5,075
Livingston	61,775	47,920	13,855	Winn	109,514	88,538	20,976
				All parishes	2,719,531	1,947,957	771,574

Table 13.—Round pulpwood production in Mississippi, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Adams	34,716	6,403	28,313	Lowndes	10,269	8,933	1,336
Alcorn	15,174	14,374	800	Madison	35,916	20,211	15,705
Amite	84,858	72,605	12,253	Marion	97,766	79,749	18,017
Attala	89,968	68,872	21,096	Marshall	14,369	7,681	6,688
Benton	16,408	12,525	3,883	Monroe	9,616	6,462	3,154
Bolivar	19,203	11	19,192	Montgomery	31,507	26,013	5,494
Calhoun	16,147	11,139	5,008	Neshoba	53,169	40,155	13,014
Carroll	9,208	5,063	4,145	Newton	107,934	79,517	28,417
Chickasaw	20,809	15,397	5,412	Noxubee	45,667	32,076	13,591
Choctaw	48,166	32,946	15,220	Oktibbeha	31,914	24,087	7,827
Claiborne	57,448	21,543	35,905	Panola	17,376	1,753	15,623
Clarke	176,928	121,208	55,720	Pearl River	160,674	134,392	26,282
Clay	11,178	9,757	1,421	Perry	99,834	82,139	17,695
Coahoma	16,144	...	16,144	Pike	62,649	49,705	12,944
Copiah	108,394	72,404	35,990	Pontotoc	10,859	8,879	1,980
Covington	79,378	64,970	14,408	Prentiss	11,500	11,170	330
De Soto	3	...	3	Quitman	...	...	...
Forrest	62,230	55,202	7,028	Rankin	110,437	72,708	37,729
Franklin	51,207	30,862	20,345	Scott	75,030	58,498	16,532
George	56,085	45,290	10,795	Sharkey	10,480	968	9,512
Greene	123,939	87,133	36,806	Simpson	68,574	57,268	11,306
Grenada	3,170	2,091	1,079	Smith	43,404	29,712	13,692
Hancock	112,836	109,255	3,581	Stone	85,103	76,616	8,487
Harrison	134,331	132,030	2,301	Sunflower	157	...	157
Hinds	35,361	16,171	19,190	Tallahatchie	2,619	738	1,881
Holmes	57,135	26,660	30,475	Tate	4,322	1,296	3,026
Humphreys	9,262	...	9,262	Tippah	24,403	17,941	6,462
Issaquena	7,324	...	7,324	Tishomingo	33,831	24,395	9,436
Itawamba	26,738	26,091	647	Tunica	3,020	...	3,020
Jackson	109,709	96,628	13,081	Union	9,924	7,889	2,035
Jasper	125,007	101,618	23,389	Walthall	43,977	38,210	5,767
Jefferson	65,288	32,958	32,330	Warren	11,361	571	10,790
Jefferson Davis	73,478	67,954	5,524	Washington	10,013	...	10,013
Jones	96,012	63,871	32,141	Wayne	98,130	64,792	33,338
Kemper	70,859	43,980	26,879	Webster	27,430	24,323	3,107
Lafayette	25,938	12,575	13,363	Wilkinson	75,578	49,640	25,938
Lamar	54,027	43,986	10,041	Winston	53,350	42,409	10,941
Lauderdale	115,715	75,885	39,830	Yalobusha	39,644	25,640	14,004
Lawrence	84,512	81,360	3,152	Yazoo	21,177	913	20,264
Leake	77,562	64,524	13,038				
Lee	3,304	3,162	142				
Leflore	5,935	1,328	4,607				
Lincoln	84,473	66,199	18,274	All counties	4,128,550	3,023,479	1,105,071

Table 14.—Round pulpwood production in North Carolina, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Alamance	8,737	5,648	3,089	Lee	20,719	10,048	10,671
Alexander	8,261	7,522	739	Lenoir	12,074	10,792	1,282
Alleghany	...	...	...	Lincoln	7,439	3,901	3,538
Anson	74,105	56,389	17,716	McDowell	20,380	5,931	14,449
Ashe	...	...	...	Macon	10,703	887	9,816
Avery	214	...	214	Madison	6,646	3,020	3,626
Beaufort	125,857	93,647	32,210	Martin	56,779	42,955	13,824
Bertie	71,704	38,622	33,082	Mecklenburg	23,392	14,393	8,999
Bladen	46,961	30,325	16,636	Mitchell	381	10	371
Brunswick	89,119	69,051	20,068	Montgomery	28,654	18,269	10,385
Buncombe	32,761	13,304	19,457	Moore	26,744	19,522	7,222
Burke	33,704	20,149	13,555	Nash	26,220	13,573	12,647
Cabarrus	11,730	7,228	4,502	New Hanover	4,128	3,339	789
Caldwell	10,324	6,273	4,051	Northampton	26,910	16,509	10,401
Camden	1,035	44	991	Onslow	122,483	98,365	24,118
Carteret	16,480	15,022	1,458	Orange	13,512	6,780	6,732
Caswell	12,817	4,244	8,573	Pamlico	48,874	39,857	9,017
Catawba	7,556	4,405	3,151	Pasquotank	8,978	5,401	3,577
Chatham	36,122	19,603	16,519	Pender	60,332	43,525	16,807
Cherokee	29,324	19,947	9,377	Perquimans	37,960	25,600	12,360
Chowan	7,698	2,847	4,851	Person	14,287	5,563	8,724
Clay	...	...	...	Pitt	18,891	16,236	2,655
Cleveland	18,782	15,338	3,444	Polk	12,930	4,321	8,609
Columbus	99,364	65,927	33,437	Randolph	32,028	12,579	19,449
Craven	127,550	102,327	25,223	Richmond	77,566	70,009	7,557
Cumberland	30,323	19,555	10,768	Robeson	34,991	21,664	13,327
Currituck	118	...	118	Rockingham	33,643	23,039	10,604
Dare	33,478	30,951	2,527	Rowan	11,826	7,271	4,555
Davidson	16,747	13,014	3,733	Rutherford	41,382	23,904	17,478
Davie	15,879	8,705	7,174	Sampson	54,770	35,194	19,576
Duplin	53,598	35,458	18,140	Scotland	82,334	79,410	2,924
Durham	25,950	15,103	10,847	Stanly	13,018	7,280	5,738
Edgecombe	12,164	7,386	4,778	Stokes	10,154	7,672	2,482
Forsyth	11,862	9,366	2,496	Surry	28,296	24,523	3,773
Franklin	69,759	38,939	30,820	Swain	6,236	3,357	2,879
Gaston	10,699	6,856	3,843	Transylvania	16,546	1,627	14,919
Gates	23,875	11,613	12,262	Tyrrell	57,700	48,244	9,456
Graham	3,832	1,924	1,908	Union	38,342	24,196	14,146
Granville	30,061	20,604	9,457	Vance	14,327	7,190	7,137
Greene	2,819	1,620	1,199	Wake	38,352	28,595	9,757
Guilford	14,154	8,250	5,904	Warren	59,262	47,037	12,225
Halifax	52,459	34,960	17,499	Washington	19,125	12,309	6,816
Harnett	17,425	10,863	6,562	Watauga	...	...	...
Haywood	12,185	1,735	10,450	Wayne	22,081	18,409	3,672
Henderson	22,452	6,623	15,829	Wilkes	5,162	3,039	2,123
Hertford	22,135	6,895	15,240	Wilson	12,113	7,420	4,693
Hoke	25,117	21,319	3,798	Yadkin	3,079	1,928	1,151
Hyde	18,854	14,263	4,591	Yancey	542	...	542
Irredell	27,224	16,688	10,536				
Jackson	28,926	2,263	26,663				
Johnston	11,003	4,805	6,198				
Jones	44,365	37,817	6,548				
				All counties	2,829,959	1,910,130	919,829

Table 15.—Round pulpwood production in Oklahoma, 1969

County ¹	All species	Softwood	Hardwood	County ¹	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Blaine	2,373	...	2,373	Mayes	2,564	...	2,564
Bryan	266	...	266	Nowata	301	...	301
Canadian	4,666	...	4,666	Okfuskee	2,581	...	2,581
Choctaw	2,462	738	1,724	Oklahoma	137	...	137
Craig	71	...	71	Ottawa	2,621	...	2,621
Creek	219	...	219	Payne	27	...	27
Dewey	326	...	326	Pontotoc	237	...	237
Grady	4,940	...	4,940	Pushmataha	9,287	4,984	4,303
Haskell	39	...	39	Sequoyah	4,250	...	4,250
Jefferson	2,979	...	2,979	Wagoner	2,563	...	2,563
Johnston	94	...	94	Washita	140	...	140
Latimer	300	300	...	Woods	909	...	909
Le Flore	13,215	9,527	3,688	Woodward	1,074	...	1,074
Lincoln	685	...	685				
McCurtain	57,682	39,426	18,256	All counties	117,008	54,975	62,033

¹ Counties with no pulpwood production are omitted.

Table 16.—Round pulpwood production in South Carolina, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Abbeville	30,891	23,314	7,577	Jasper	28,811	18,478	10,333
Aiken	39,542	32,169	7,373	Kershaw	139,767	111,956	27,811
Allendale	22,869	15,549	7,320	Lancaster	46,151	33,758	12,393
Anderson	24,706	16,883	7,823	Laurens	63,071	51,174	16,897
Bamberg	27,781	17,648	10,133	Lee	15,805	11,892	3,913
Barnwell	16,159	15,011	1,148	Lexington	32,484	24,920	7,564
Beaufort	20,412	19,362	1,050	McCormick	76,388	65,709	10,679
Berkeley	87,915	68,453	19,462	Marion	45,893	22,809	23,084
Calhoun	8,450	6,900	1,550	Marlboro	37,283	20,817	16,466
Charleston	40,852	32,423	8,429	Newberry	80,232	63,197	17,035
Cherokee	13,237	10,092	3,145	Oconee	38,819	16,369	22,450
Chester	79,603	59,645	19,958	Orangeburg	41,477	32,650	8,827
Chesterfield	144,809	126,007	18,802	Pickens	16,511	12,661	3,850
Clarendon	74,460	58,443	16,017	Richland	74,267	54,837	19,430
Colleton	75,863	53,213	22,650	Saluda	43,605	32,513	11,092
Darlington	72,271	49,110	23,161	Spartanburg	35,708	26,376	9,332
Dillon	12,271	9,327	2,944	Sumter	42,351	31,249	11,102
Dorchester	54,964	34,046	20,918	Union	62,055	53,585	8,470
Edgefield	73,100	60,418	12,682	Williamsburg	63,612	36,682	26,930
Fairfield	137,082	105,891	31,191	York	61,572	48,807	12,765
Florence	40,868	23,115	17,753				
Georgetown	127,964	105,850	22,114	All counties	2,504,790	1,884,206	620,584
Greenville	13,315	9,561	3,754				
Greenwood	65,817	54,186	11,631				
Hampton	68,476	47,503	20,973				
Horry	80,251	59,648	20,603				

Table 17.—Round pulpwood production in Tennessee, 1969

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Anderson	4,489	2,152	2,337	Lawrence	968	960	8
Bedford	...	...	...	Lewis	1,101	97	1,004
Benton	879	9	870	Lincoln	3	3	...
Bledsoe	9,126	6,302	2,824	Loudon	8,248	2,644	5,604
Bount	10,708	6,952	3,756	McMinn	18,894	12,898	5,996
Bradley	14,525	10,427	4,098	McNairy	6,316	5,940	376
Campbell	6,178	2,647	3,531	Macon	...	...	...
Cannon	...	...	...	Madison	1,015	1,000	15
Carroll	1,342	472	870	Marion	1,113	635	478
Carter	8,288	869	7,419	Marshall	...	...	...
Chatham	...	...	...	Mauzy	...	...	...
Chester	1,432	1,411	21	Meigs	12,911	7,493	5,418
Claiborne	168	...	168	Monroe	19,893	10,904	8,989
Clay	...	...	...	Montgomery	...	...	...
Cocke	6,974	5,360	1,614	Moore	...	...	...
Coffee	3,064	3,064	...	Morgan	19,205	4,881	14,324
Crockett	...	...	...	Obion	...	...	...
Cumberland	25,265	4,660	20,605	Overton	387	...	387
Davidson	...	...	...	Perry	1,274	96	1,178
Decatur	1,450	1,431	19	Pickett	...	...	...
De Kalb	...	...	...	Polk	13,973	8,788	5,185
Dickson	...	...	...	Putnam	13,901	5,406	8,495
Dyer	...	...	...	Rhea	19,458	5,655	13,803
Fayette	...	...	...	Roane	12,594	8,430	4,164
Fentress	4,270	3,431	839	Robertson	...	...	...
Franklin	18	18	...	Rutherford	...	...	...
Gibson	28	28	...	Scott	13,116	4,737	8,379
Giles	33	33	...	Sequatchie	2,346	929	1,417
Grainger	260	...	260	Sevier	5,254	5,214	40
Greene	1,524	...	1,524	Shelby	4	4	...
Grundy	1,802	1,802	...	Smith	...	...	...
Hamblen	...	...	...	Stewart	...	...	...
Hamilton	9,475	4,594	4,881	Sullivan	13,587	...	13,587
Hancock	602	...	602	Sumner	...	...	...
Hardeman	2,154	2,149	5	Tipton	4,569	...	4,569
Hardin	22,769	12,098	10,671	Trousdale	...	...	...
Hawkins	4,893	...	4,893	Unicoi	7,662	869	6,793
Haywood	...	...	...	Union	2,101	649	1,452
Henderson	3,002	2,975	27	Van Buren	...	...	...
Henry	1,025	155	870	Warren	297	297	...
Hickman	4,672	...	4,672	Washington	4,505	1,738	2,767
Houston	...	...	...	Wayne	1,474	1,160	314
Jumpshreys	...	...	...	Weakley	1,044	174	870
Jackson	...	...	...	White	16	...	16
Jefferson	331	324	7	Williamson	6	6	...
Johnson	2,519	...	2,519	Wilson	...	...	...
Knox	4,203	2,920	1,283	All counties	364,703	167,890	196,813
Lake	...	...	...				
Lauderdale	...	...	...				

Table 18.—*Round pulpwood production in Texas, 1969*

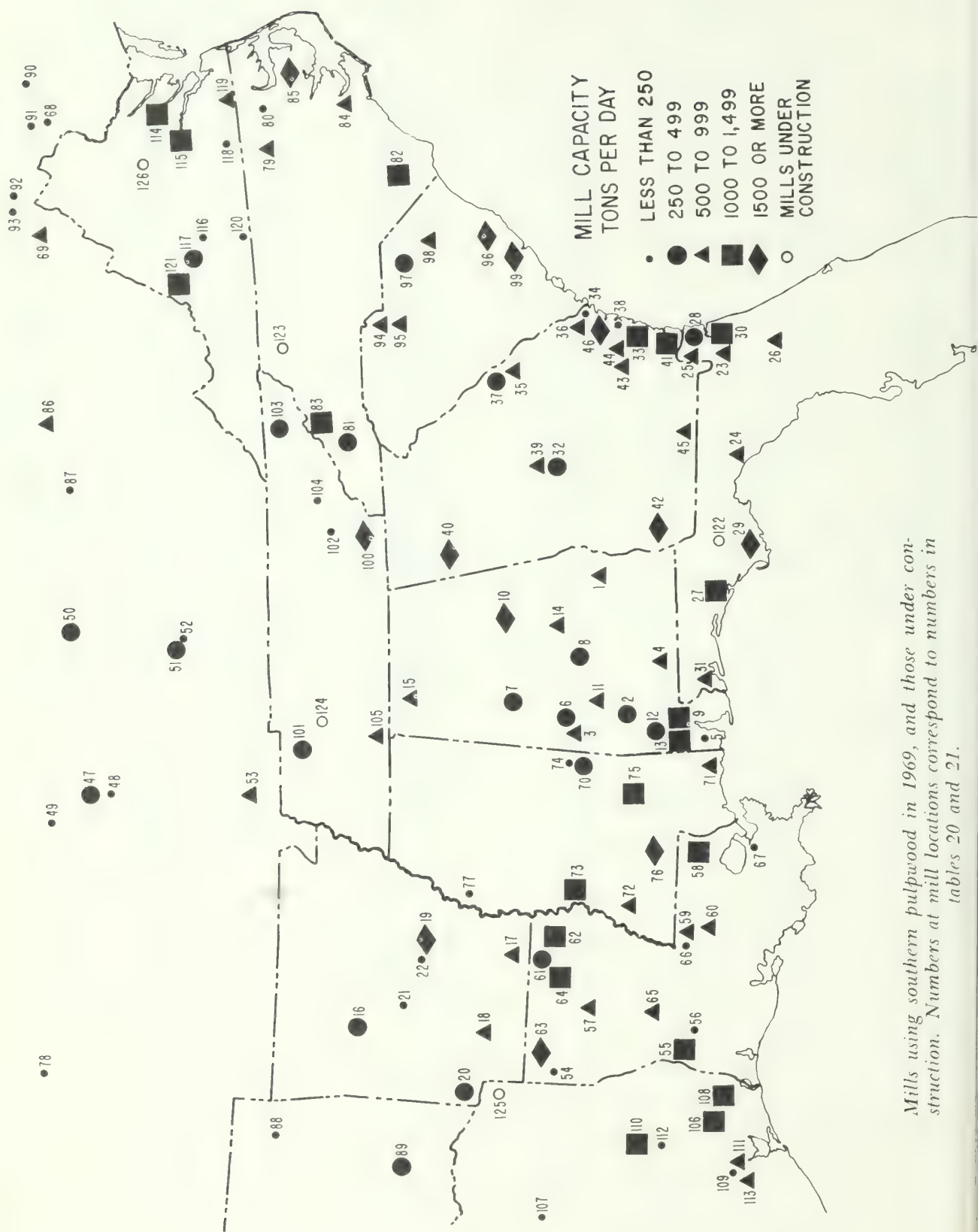
County ¹	All species	Softwood	Hardwood	County ¹	All species	Softwood	Hardwood
— — <i>Standard cords</i> — —				— — <i>Standard cords</i> — —			
Anderson	23,854	21,653	2,201	Marion	37,574	33,002	4,572
Angelina	85,359	80,222	5,137	Montgomery	89,841	72,038	17,803
Austin	122	...	122	Morris	12,808	11,306	1,502
Bowie	29,047	24,086	4,961	Nacogdoches	123,951	108,139	15,812
Brazoria	137	37	100	Newton	120,868	77,537	43,331
Camp	11,630	11,568	62	Orange	16,895	13,448	3,447
Cass	61,911	52,036	9,875	Panola	69,064	62,558	6,506
Chambers	4,228	3,955	273	Polk	141,317	125,626	15,691
Cherokee	51,753	43,188	8,565	Rusk	44,442	40,724	3,718
Fort Bend	48	20	28	Sabine	44,221	35,528	8,693
Franklin	14,761	10,839	3,922	San Augustine	69,370	57,138	12,232
Gregg	8,481	7,393	1,088	San Jacinto	62,985	55,868	7,117
Grimes	15,199	14,419	780	Shelby	79,634	65,289	14,345
Hardin	76,906	54,667	22,239	Smith	14,687	14,440	247
Harris	45,875	34,207	11,668	Titus	8,093	7,449	644
Harrison	41,695	40,732	963	Trinity	92,757	84,922	7,835
Henderson	3,686	3,341	345	Tyler	103,856	63,805	40,051
Hopkins	1,360	1,360	...	Upshur	54,882	51,558	3,324
Houston	53,620	49,819	3,801	Walker	54,465	44,185	10,280
Jasper	146,269	113,330	32,939	Waller	2,740	571	2,169
Jefferson	3,884	3,609	275	Wood	5,599	5,150	449
Lamar	301	...	301	All counties	2,008,023	1,654,502	353,521
Leon	3,000	3,000	...				
Liberty	74,848	50,740	24,108				

¹ Counties with no pulpwood production are omitted.

Table 19.—Round pulpwood production in Virginia, 1969

County ¹	All species	Softwood	Hardwood	County ¹	All species	Softwood	Hardwood
— — Standard cords — —				— — Standard cords — —			
Accomack	12,997	12,183	814	Lancaster	5,790	5,466	324
Albemarle	35,604	18,792	16,812	Lee	3,887	...	3,887
Alleghany	39,064	6,194	32,870	Loudoun	3,607	3,588	19
Amelia	38,427	23,121	15,306	Louisa	25,750	17,899	7,851
Amherst	33,066	6,032	27,034	Lunenburg	37,445	20,982	16,463
Appomattox	66,993	28,117	38,876	Madison	177	123	54
Arlington	1	1	...	Mathews	3,469	3,142	327
Augusta	17,897	3,307	14,590	Mecklenburg	27,339	16,397	10,942
Bath	30,280	2,433	27,847	Middlesex	6,316	5,216	1,100
Bedford	58,136	20,763	37,373	Montgomery	3	...	3
Bland	40	20	20	Nansemond	11,388	6,670	4,718
Botetourt	32,624	9,795	22,829	Nelson	24,678	11,779	12,899
Brunswick	83,387	52,430	30,957	New Kent	27,261	21,169	6,092
Buchanan	10	...	10	Norfolk	3,684	1,762	1,922
Buckingham	99,039	22,644	76,395	Northampton	369	340	29
Campbell	47,553	23,570	23,983	Northumberland	3,071	2,877	194
Caroline	19,115	18,419	696	Nottoway	26,618	17,348	9,270
Carroll	253	105	148	Orange	3,930	2,159	1,771
Charles City	18,938	12,241	6,697	Page	1,165	1,049	116
Charlotte	35,035	18,165	16,870	Patrick	4,146	3,929	217
Chesterfield	36,897	31,502	5,395	Pittsylvania	66,730	43,462	23,268
Clarke	5,107	4,200	907	Powhatan	12,023	3,866	8,157
Craig	17,521	3,286	14,235	Prince Edward	50,474	20,412	30,062
Culpeper	7,206	6,869	337	Prince George	34,435	23,693	10,742
Cumberland	24,892	7,100	17,792	Prince William	8,948	8,740	208
Dickenson	...	...	...	Princess Anne	533	90	443
Dinwiddie	72,517	52,972	19,545	Pulaski	58	49	9
Elizabeth City	...	...	...	Rappahannock	1,022	1,022	...
Essex	14,696	13,561	1,135	Richmond	8,900	8,833	67
Fairfax	1,549	1,549	...	Roanoke	3,693	695	2,998
Fauquier	9,024	8,957	67	Rockbridge	37,070	7,483	29,587
Floyd	172	136	36	Rockingham	5,172	4,151	1,021
Fluvanna	15,863	5,590	10,273	Russell	254	...	254
Franklin	21,306	17,210	4,096	Scott	6,352	...	6,352
Frederick	9,923	6,844	3,079	Shenandoah	4,217	2,725	1,492
Giles	90	...	90	Smyth	6,859	...	6,859
Gloucester	10,682	8,839	1,843	Southampton	48,961	19,983	28,978
Goochland	26,453	17,284	9,169	Spotsylvania	16,319	13,326	2,993
Grayson	268	...	268	Stafford	3,340	2,756	584
Greene	640	467	173	Surry	44,679	25,795	18,884
Greensville	55,656	46,206	9,450	Sussex	71,866	39,177	32,689
Halifax	22,465	10,522	11,943	Tazewell	6	...	6
Hanover	15,794	12,189	3,605	Warren	1,907	1,109	798
Henrico	5,570	4,616	954	Warwick	1,224	1,087	137
Henry	15,050	13,793	1,257	Washington	5,772	...	5,772
Highland	6,954	805	6,149	Westmoreland	4,386	4,381	5
Isle of Wight	27,072	9,085	17,987	Wise	1,532	...	1,532
James City	5,022	4,032	990	Wythe	821	37	784
King and Queen	39,476	33,887	5,589	York	4,417	3,992	425
King George	191	131	60				
King William	21,639	17,650	3,989	All counties	1,830,217	996,373	833,844

¹ Includes independent cities.



Mills using southern pulpwood in 1969, and those under construction. Numbers at mill locations correspond to numbers in tables 20 and 21.

Table 20.—Mills using southern pulpwood in 1969, by process and capacity

Location	Map code ¹	Company	Pulping capacity, 24 hours ²				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
			— — — — — Tons — — — — —				
LABAMA							
Mahrt	(1)	Alabama Kraft Co., Div. Ga. Kraft Co.	800	800	...	...	...
Jackson	(2)	Allied Paper Corp.	470	470	...	...	...
Naheola	(3)	American Can Co.	900	900	...	...	...
Brewton	(4)	Container Corp. of America	800	800	...	...	...
Mobile	(5)	General Aniline and Film Corp.	48	...	48	...	...
Demopolis	(6)	Gulf States Paper Corp.	400	400	...	...	...
Tuscaloosa	(7)	Gulf States Paper Corp.	450	450	...	...	...
Riverdale	(8)	Hammermill Paper Co., Riverdale Div.	400	400	...	...	...
Mobile	(9)	International Paper Co.	1,315	1,015	300	...	...
Coosa Pines	(10)	Kimberly-Clark Corp., Coosa River Newsprint Div.	1,590	650	940	...	...
Pine Hill	(11)	MacMillan Bloedel United, Inc.	925	925	...	...	...
Mobile	(12)	National Gypsum Co.	300	...	150	150	...
Mobile	(13)	Scott Paper Co.	1,400	1,400	...	...	...
Montgomery	(14)	Union Camp Corp.	870	870	...	...	...
Courtland	(15)	U.S. Plywood-Champion Papers Inc.	500	500	...	...	...
Total			11,168	9,580	1,438	150	...
RKANSAS							
Morrilton	(16)	Arkansas Kraft Corp.	350	350	...	...	...
Crossett	(17)	Georgia-Pacific Corp., Crossett Division-Paper	835	835	...	...	...
Camden	(18)	International Paper Co.	750	750	...	...	...
Pine Bluff	(19)	International Paper Co.	1,700	1,300	400	...	...
Ashdown	(20)	Nekoosa-Edwards Paper Co.	400	400	...	...	...
Little Rock	(21)	Superwood Corp. of Arkansas	120	...	120	...	...
Pine Bluff	(22)	Weyerhaeuser Co., Dierks Div.	150	150	...	...	...
Total			4,305	3,785	520	...	...
LORIDA							
Jacksonville	(23)	Alton Box Board Co.	625	625	...	...	...
Foley	(24)	The Buckeye Cellulose Corp.	923	923	...	...	...
Fernandina Beach	(25)	Container Corp. of America	800	800	...	...	...
Palatka	(26)	Hudson Pulp and Paper Corp.	950	950	...	...	...
Panama City	(27)	International Paper Co.	1,375	1,375	...	...	...
Fernandina Beach	(28)	I.T.T. Rayonier Inc.	375	...	...	...	375
Port St. Joe	(29)	St. Joe Paper Co.	1,700	1,700	...	...	...
Jacksonville	(30)	St. Regis Paper Co.	1,400	1,400	...	...	...
Pensacola	(31)	St. Regis Paper Co.	900	900	...	...	...
Total			9,048	8,673	...	...	375
EORGIA							
Macon	(32)	Armstrong Cork Co.	400	...	400	...	...
Brunswick	(33)	Brunswick Pulp and Paper Co.	1,200	1,200	...	...	...
Savannah	(34)	Certain-teed Products Corp.	65	...	...	65	...
Augusta	(35)	Continental Can Co., Inc.	700	700	...	...	...
Port Wentworth	(36)	Continental Can Co., Inc.	600	600	...	...	...
Augusta	(37)	Cox Newsprint, Inc.	375	...	375	...	...
Savannah	(38)	General Aniline and Film Corp.	48	...	48	...	...
Macon	(39)	Georgia Kraft Co., Mead Div.	850	850	...	...	...
Rome	(40)	Georgia Kraft Co., Krannert Div.	1,500	1,500	...	...	...
St. Marys	(41)	Gilman Paper Co., St. Marys Kraft Div.	1,000	1,000	...	...	...
Cedar Springs	(42)	Great Northern Paper Co., Southern Div.	1,700	1,700	...	...	...
Jesup	(43)	I.T.T. Rayonier Inc.	675	675	...	...	...
Riceboro	(44)	Interstate Paper Corp.	500	500	...	...	...
Valdosta	(45)	Owens-Illinois, Forest Products Div.	865	865	...	...	...
Savannah	(46)	Union Camp Corp.	3,000	2,600	...	400	...
Total			13,478	12,190	823	465	...
LINOIS							
Alton	(47)	Alton Box Board Co.	300	...	...	300	...
East St. Louis	(48)	Certain-teed Products Corp.	100	...	100	...	...
Wilmington	(49)	Philip Carey Corp.	150	...	150	...	...
Total			550	...	250	300	...

Table 20.—Mills using southern pulpwood in 1969, by process and capacity (Continued)

Location	Map code ¹	Company	Pulping capacity, 24 hours ²				
			All processes	Sulfate	Groundwood and other mechanical	Semi-chemical	Soda and sulfite
			— — — — — Tons — — — — —				
INDIANA							
Terre Haute	(50)	Weston Paper & Mfg. Co.	250	...	...	250	...
		Total	250	...	...	250	...
KENTUCKY							
Hawesville	(51)	WesCor Corp.	250	...	...	250	...
Hawesville	(52)	Western Kraft Corp.	200	200	...	...	...
Wickliffe	3 (53)	Westvaco Corp.	600	600	...	...	...
		Total	1,050	800	...	250	...
LOUISIANA							
Shreveport	(54)	Bird and Son, Inc.	60	...	...	60	...
DeRidder	(55)	Boise Southern Co.	1,300	950	350	...	...
Elizabeth	(56)	Calcasieu Paper Co., Inc.	240	240	...	...	...
Hodge	(57)	Continental Can Co., Inc.	750	550	...	200	...
Bogalusa	(58)	Crown Zellerbach Corp.	1,435	1,300	...	135	...
St. Francisville	(59)	Crown Zellerbach Corp.	500	500	...	...	...
Port Hudson	(60)	Georgia-Pacific Corp., Crossett Division-Paper	510	510	...	...	...
Bastrop	(61)	International Paper Co. (Bastrop Mill)	485	...	...	485	...
Bastrop	(62)	International Paper Co. (Louisiana Mill)	1,100	1,100	...	...	...
Springhill	(63)	International Paper Co.	1,625	1,625	...	...	...
West Monroe	(64)	Olinkraft, Inc.	1,245	1,175	...	70	...
Pineville	(65)	Pineville Kraft Corp.	750	750	...	...	...
St. Francisville	(66)	St. Francisville Paper Co.	235	...	235	...	...
New Orleans	(67)	Southern Johns-Manville Products Corp.	60	...	60	...	...
		Total	10,295	8,700	645	950	...
MARYLAND							
Finksburg	(68)	Congoleum-Nairn Inc.	200	...	...	200	...
Luke	(69)	Westvaco Corp.	743	743	...	...	...
		Total	943	743	...	200	...
MISSISSIPPI							
Meridian	(70)	The Flintkote Co.	250	...	200	50	...
Moss Point	(71)	International Paper Co.	725	725	...	...	...
Natchez	(72)	International Paper Co.	950	950	...	...	...
Vicksburg	(73)	International Paper Co.	1,000	1,000	...	...	...
Meridian	(74)	Kroehler Mfg. Co. of Miss., Inc.	80	...	80	...	...
Laurel	(75)	Masonite Corp.	1,200	...	1,200	...	...
Monticello	(76)	St. Regis Paper Co.	1,620	1,620	...	...	...
Greenville	(77)	United States Gypsum Co.	225	...	225	...	...
		Total	6,050	4,295	1,705	50	...
MISSOURI							
Kansas City	(78)	General Aniline & Film Corp.	100	...	100	...	...
		Total	100	...	100	...	...
NORTH CAROLINA							
Roanoke Rapids	(79)	Albemarle Paper Co.	940	940	...	...	...
Conway	(80)	Georgia-Pacific Corp.	200	...	200	...	...
Sylva	(81)	The Mead Corp.	290	...	...	290	...
Riegelwood	(82)	Riegel Paper Co.	1,000	1,000	...	...	...
Canton	(83)	U.S. Plywood-Champion Papers Inc.	1,290	1,290	...	...	...
New Bern	(84)	Weyerhaeuser Co., N. C. Div.	600	600	...	...	...
Plymouth	(85)	Weyerhaeuser Co., N. C. Div.	1,500	1,250	...	250	...
		Total	5,820	5,080	200	540	...

Table 20.—Mills using southern pulpwood in 1969 by process and capacity (Continued)

Location	Map code ¹	Company	Pulping capacity, 24 hours ²				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
			— — — — — Tons — — — — —				
OHIO							
Chillicothe	(86)	The Mead Corp.	600	600	...	...	...
Cincinnati	(87)	Philip Carey Corp.	200	...	200	...	...
		Total	800	600	200	...	...
OKLAHOMA							
Pryor	(88)	Georgia-Pacific, Bestwall Gypsum Div.	45	...	45	...	...
Broken Bow	(89)	Weyerhaeuser Co., Dierks Div.	450	...	450	...	...
		Total	495	...	495	...	...
PENNSYLVANIA							
Sunbury	(90)	The Celotex Corp.	150	...	...	150	...
York	(91)	Certain-teed Products Corp.	75	...	...	75	...
Roaring Spring	(92)	Combined Paper Mills, Inc.	180	180	...	...	...
Tyrone	(93)	Westvaco Corp.	153	153	...	...	...
		Total	558	333	...	225	...
SOUTH CAROLINA							
Catawba	(94)	Bowaters Carolina Corp.	700	600	100	...	...
Catawba	(95)	Catawba Newsprint Co.	500	...	500	...	...
Georgetown	(96)	International Paper Co.	2,130	1,650	...	480	...
Hartsville	(97)	Sonoco Products Co.	320	...	...	320	...
Florence	(98)	South Carolina Industries, Inc.	600	600	...	...	...
Charleston	(99)	Westvaco Corp.	1,994	1,994	...	...	...
		Total	6,244	4,844	600	800	...
TENNESSEE							
Calhoun	(100)	Bowaters Southern Paper Corp.	1,600	500	900	200	...
Paris	(101)	The Celotex Corp.	300	...	...	300	...
Harriman	(102)	The Mead Corp.	190	...	...	190	...
Kingsport	(103)	The Mead Corp.	300	...	...	...	300
Knoxville	(104)	Southern Extract Co.	130	...	...	130	...
Counce	(105)	Tennessee River Pulp and Paper Co.	700	700	...	...	...
		Total	3,220	1,200	900	820	300
TEXAS							
Evadale	(106)	EasTex, Inc.	1,200	1,200	...	...	...
Dallas	(107)	General Aniline & Film Corp.	40	...	40	...	...
Orange	(108)	Owens-Illinois, Forest Products Div.	1,000	1,000	...	...	...
Houston	(109)	Philip Carey Corp.	25	...	25	...	...
Lufkin	(110)	Southland Paper Mills, Inc.	1,250	400	850	...	...
Sheldon	(111)	Southland Paper Mills, Inc.	860	500	360	...	...
Diball	(112)	Temple Industries, Fiber Products Div.	195	...	...	195	...
Pasadena	(113)	U.S. Plywood-Champion Papers Inc.	930	850	80	...	...
		Total	5,500	3,950	1,355	195	...
VIRGINIA							
West Point	(114)	The Chesapeake Corp. of Virginia	1,050	1,050	...	...	...
Hopewell	(115)	Continental Can Co., Inc.	1,000	830	...	170	...
Lynchburg	(116)	The Mead Corp.	190	...	...	190	...
Big Island	(117)	Owens-Illinois, Forest Products Div.	450	...	...	450	...
Jarratt	(118)	Southern Johns-Manville Products Corp.	200	...	200	...	...
Franklin	(119)	Union Camp Corp.	900	900	...	...	...
Danville	(120)	United States Gypsum Co.	225	...	225	...	...
Covington	(121)	Westvaco Corp.	1,342	1,062	...	280	...
		Total	5,357	3,842	425	1,090	...
		All States	85,231	68,615	9,656	6,285	675

¹ Corresponds to numbers at locations on mill capacity map, page 16.² Southern Pulp and Paper Manufacturer, vol. 32, No. 10 (Oct. 1, 1969); and other sources.³ This mill, under construction in 1969, received wood from the South.

Table 21.—*Pulpmills under construction in the South*

Location	Map code ¹	Company	Pulping capacity, 24 hours
			<i>Tons</i>
FLORIDA			
Blountstown	122	Abitibi Corp.	100
NORTH CAROLINA			
Roaring River	123	Abitibi Corp.	120
TENNESSEE			
New Johnsonville	124	Inland Container Corp.	450
TEXAS			
Texarkana	125	International Paper Co.	610
VIRGINIA			
Doswell	126	Evans Products Co.	300

¹ Corresponds to numbers at locations on mill capacity map, page 16.

Welch, Richard L.

1970. Southern Pulpwood Production, 1969. Southeast. Forest Exp. Sta., USDA Forest Serv. Resource Bull. SE-18, 20 pp.

Southern pulpwood production climbed to 40,868,990 cords in 1969. This was an increase of 3,793,600 cords over the 1968 production and is the greatest annual increment ever recorded in the region. Gains were made in all 12 States. The daily pulping capacity of the 105 southern pulpmills was 80,980 tons.

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Welch, Richard L.

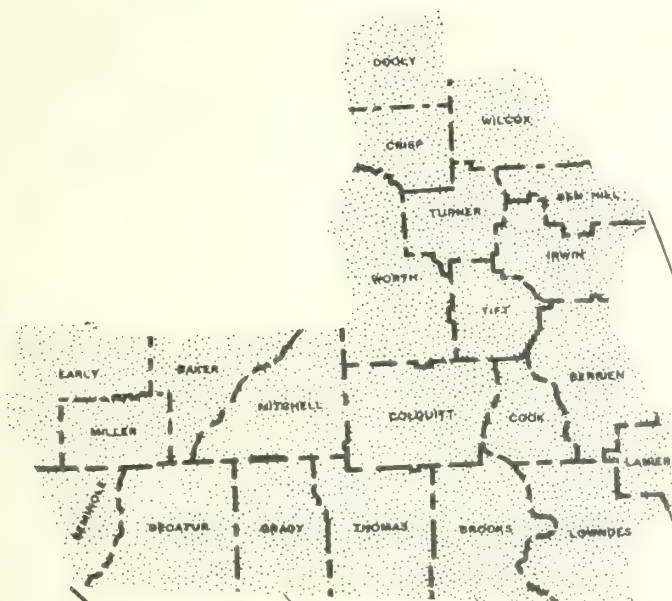
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FOREST STATISTICS for Southwest Georgia 1971



FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in Southwest Georgia. The survey was started in June 1970 and completed in October 1970. Findings of the previous surveys, completed in 1934, 1951, and 1960, provide the basis for measuring changes that have occurred and trends that have developed over the past 37 years. In this report, the primary emphasis is on the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and ascertain rates of timber growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 22-county area covered by this report is one of five Survey units in Georgia. Comparable reports for the other four units will be issued as the Statewide survey progresses. When completed, this survey will provide updated statistics on the timber resource for all of Georgia.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Georgia Forestry Commission and forest industry in the collection of the field data.

Joe P. McClure, Project Leader of the Forest Survey in the Southeast, planned and coordinated the various phases of the Survey. Noel D. Cost was in charge of the data collection. William H. B. Haines was in charge of the processing and computations. Richard L. Welch was in charge of the remeasurement studies. Herbert A. Knight was in charge of analysis and reporting.

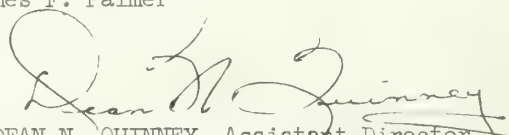
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Division of Watershed, Utilization,
Resources, and Marketing Research

**Forest Statistics
for
Southwest Georgia
1971**

by

Herbert A. Knight, Resource Analyst

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HIGHLIGHTS

Since 1960 in Southwest Georgia--

- area of commercial forest land has declined by 180,000 acres, or almost 6 percent. During this 11-year period, 366,000 acres were diverted from commercial forest to other land uses, while only 186,000 acres of new forest land were added. About 80 percent of the diversion was to pasture and other agricultural uses. Most of the remaining loss was to urban development. Area of commercial forest land now totals about 2.9 million acres, or 51 percent of total land area.
- three out of every five acres of commercial forest land have either been harvested, regenerated, treated, or disturbed. Approximately 790,000 acres were either harvested or thinned, and an estimated 250,000 acres were artificially reforested. Other common types of treatment and disturbance in evidence were cleaning, prescribed burning, grazing, turpentine, wildfire, and substantial damage from insects and disease.
- average basal area of all live trees 5.0 inches d.b.h. and larger has increased from 40 to 52 square feet per acre of commercial forest land. There are also about 145 more sapling-size trees per acre than in 1960. In spite of this buildup in average stand density, one out of every three acres of commercial forest land is still either nonstocked or poorly stocked.
- area of commercial forest land owned by farmers has declined by one-third, from 2.6 to 1.7 million acres. Land clearing accounted for part of this decrease; however, most of the change is attributed to a shift in ownership from the farmer to the miscellaneous private class. Forest industry has increased its commercial forest holdings from 200,000 to 251,000 acres. In addition, forest industry has about 118,000 acres under long-term lease. Only 1 percent of the commercial forest land in Southwest Georgia is publicly owned.
- volume of growing stock has increased by 581 million cubic feet, or almost 27 percent, reversing a downward trend in volume between 1951 and 1960. The inventory of growing stock now exceeds 2.7 billion cubic feet and includes about 8.5 billion board feet of sawtimber. There is an additional 0.3 billion cubic feet in rough and rotten trees.

- softwoods have accounted for 85 percent of the net gain in the volume of growing stock. Volume of all major softwood species increased significantly except longleaf pine, which showed little change. Slash pine and loblolly pine made the greatest gains.
- hardwoods have accounted for only 15 percent of the net gain in the volume of growing stock. Blackgum, laurel oak, water oak, and sweetgum are the leading hardwood species in the inventory and accounted for most of the increase.

In 1970--

- net growth of growing stock totaled 170 million cubic feet and exceeded removals by an estimated 52 million cubic feet, or 44 percent. About 79 percent of this growth over removals was softwood and the remaining 21 percent was hardwood. By ownership, 48 percent of the growth over removals was on miscellaneous private lands, 40 percent on farm woodlands, and the remaining 12 percent on forest industry lands. The growth estimate for 1970 includes 598 million board feet of sawtimber.
- removals of growing stock totaled over 118 million cubic feet, over three-fourths of which was softwood. Almost two-thirds of the removals came from farm woodlands, although farmers own less than 60 percent of the commercial forest area. In contrast, only 23 percent of the removals came from miscellaneous private holdings, which make up over 30 percent of commercial forest area. Forest industry lands provided about 10 percent of the removals. The removals estimate for 1970 includes 453 million board feet of sawtimber.
- mortality of growing stock totaled almost 20 million cubic feet and reduced gross growth by 10 percent. This mortality estimate includes 53 million board feet of sawtimber. Slightly over half of the mortality was softwood. Suppression, fire, and weather were the leading identifiable causes of death. Although not one of the leading causes of death, fusiform disease has afflicted an unusually high percentage of the pine stands in Southwest Georgia.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 17,988 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 1,701 of these 16-point clusters were ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 826 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on the trees tallied at 1 out of every 20 sample locations in Southwest Georgia, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same 5-percent subsample of plots used for the tree-volume study in Southwest Georgia also served as a quality control of field measurements.
4. Felled trees were measured at 21 active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 908 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	1.26
Per billion cubic feet of growing stock - - - - -	5.37
Per billion cubic feet of net annual growth - - - - -	1.27
Per billion cubic feet of annual removals - - - - -	2.55

Sampling errors for county and unit totals,^{1/} in terms of one standard error

County	: Commercial	: Cubic-foot volume of growing stock		
	: forest area	: Inventory	: Growth	: Removals
- - - - - <u>Sampling error</u> ^{2/} - - - - -				
Baker	2.68	13.71	22.13	32.18
Ben Hill	2.31	20.47	13.88	31.40
Berrien	2.13	13.52	11.70	33.97
Brooks	3.31	14.46	12.15	23.25
Colquitt	3.81	15.43	15.66	29.78
Cook	3.51	13.59	16.61	33.05
Crisp	7.21	15.87	15.69	38.81
Decatur	2.30	12.96	9.99	25.29
Dooly	4.75	15.85	15.12	32.63
Early	3.38	13.84	13.15	38.59
Grady	2.42	10.95	11.90	28.60
Irwin	2.91	13.10	13.65	44.91
Lanier	1.53	18.37	17.33	47.51
Lowndes	2.89	10.39	9.76	21.70
Miller	8.87	18.96	24.77	45.55
Mitchell	3.33	17.72	16.61	34.70
Seminole	4.63	27.20	29.91	37.38
Thomas	3.24	9.23	12.29	34.16
Tift	3.94	16.46	17.49	37.83
Turner	5.10	28.39	20.66	37.59
Wilcox	2.69	16.20	12.42	26.33
Worth	2.67	12.66	10.79	32.27
Unit total	0.74	3.23	3.07	7.41

^{1/} Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: e = Sampling error of the volume or area total in question.

SE = Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ^{1/}
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

^{1/} Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	61.0	61.0	68.2	60.0
8	68.7	68.1	76.0	68.4
10	73.7	73.1	81.4	73.4
12	77.1	76.7	85.2	76.4
14	79.5	79.4	88.2	78.4
16	81.3	81.6	90.4	79.8
18	82.6	83.3	92.3	80.8
20	83.3	84.8	93.8	81.5
22	84.0	86.0	95.1	82.1
24+	84.3	87.8	98.4	83.1
Average	74.2	73.7	81.9	73.8

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in Southwest Georgia was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1971

County	All land ^{1/}	Forest land				Nonforest land ^{2/}
		Total	Commercial forest	Unproductive forest	Productive- reserved	
----- Thousand acres -----						
Baker	227.9	127.8	127.8	--	--	100.1
Ben Hill	163.2	108.9	108.9	--	(3/)	54.3
Berrien	300.0	188.4	188.2	0.2	--	111.6
Brooks	317.5	167.2	165.6	1.6	--	150.3
Colquitt	360.1	149.8	149.1	--	0.7	210.3
Cook	149.1	78.1	76.6	1.0	0.5	71.0
Crisp	187.7	72.0	70.8	(3/)	1.2	115.7
Decatur	381.5	229.6	227.9	0.5	1.2	151.9
Dooly	252.6	97.9	97.8	0.1	(3/)	154.7
Early	336.7	160.1	158.9	--	1.2	176.6
Grady	298.9	162.5	162.5	--	--	136.4
Irwin	238.1	115.9	115.9	--	(3/)	122.2
Lanier	116.8	92.0	89.5	2.5	--	24.8
Lowndes	325.7	203.6	202.6	1.0	--	122.1
Miller	183.7	65.8	65.8	--	--	117.9
Mitchell	327.0	130.7	130.7	--	--	196.3
Seminole	165.3	65.5	64.8	--	0.7	99.8
Thomas	347.5	183.2	182.8	0.4	--	164.3
Tift	170.2	73.8	73.8	--	--	96.4
Turner	187.5	89.5	89.5	--	--	98.0
Wilcox	245.7	154.5	154.5	--	--	91.2
Worth	370.9	180.8	180.8	--	--	190.1
Total	5,653.6	2,897.6	2,884.8	7.3	5.5	2,756.0

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 54,900 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

^{3/} Less than 50 acres.

Table 2.--Area of commercial forest land, by ownership class and county, 1971

County	All ownerships	Ownership class										Miscellaneous private	
		National Forest	Miscellaneous Federal	State	County and municipal	Forest industry ^{2/}	Farmer	Miscellaneous					
								Corporate	Individual				
						Thousand acres							
Baker	127.8	--	--	--	(1/)	15.4	50.8	--	--	61.6			
Ben Hill	108.9	--	--	(1/)	0.3	8.4	60.1	3.3	3.3	36.8			
Berrien	188.2	--	--	2.6	0.1	20.9	128.4	3.3	3.3	32.9			
Brooks	165.6	--	--	--	0.1	20.9	122.1	--	--	22.5			
Colquitt	149.1	--	--	--	0.2	2.4	122.1	--	--	24.4			
Cook	76.6	--	--	(1/)	0.1	6.9	53.7	3.2	3.2	12.7			
Crisp	70.8	--	--	(1/)	0.1	0.2	66.8	--	--	3.7			
Decatur	227.9	--	6.7	1.5	1.7	16.1	95.2	26.7	26.7	80.0			
Dooley	97.8	4.1	--	--	--	2.1	57.2	--	--	34.4			
Early	158.9	--	0.4	--	(1/)	11.2	106.2	--	--	41.1			
Grady	162.5	--	--	--	(1/)	6.9	83.8	--	--	71.8			
Irwin	115.9	--	--	--	--	22.6	63.3	--	--	30.0			
Lanier	89.5	--	6.4	--	--	14.3	44.9	6.0	6.0	17.9			
Lowndes	202.6	--	0.5	--	0.1	54.5	106.9	3.7	3.7	36.9			
Miller	65.8	--	--	--	(1/)	9.4	47.9	2.8	2.8	5.7			
Mitchell	130.7	--	--	--	0.1	4.5	99.4	--	--	26.7			
Seminole	64.8	--	3.7	--	--	3.3	57.8	--	--	--			
Thomas	182.8	--	(1/)	0.1	0.5	8.3	74.0	9.7	9.7	90.2			
Tift	73.8	--	--	1.2	0.1	--	54.4	--	--	18.1			
Turner	89.5	--	--	--	0.1	4.4	27.1	3.8	3.8	54.1			
Wilcox	154.5	--	--	0.1	(1/)	16.0	79.1	9.9	9.9	49.4			
Worth	180.8	--	--	--	(1/)	2.1	121.4	3.4	3.4	53.9			
Total	2,884.8	4.1	17.7	5.5	3.5	250.8	1,722.6	75.8	75.8	804.8			

^{1/} Less than 50 acres.^{2/} Not including 117,700 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1971

County	All type groups	Forest-type groups						Elm-ash- cottonwood
		Longleaf- slash	Loblolly- shortleaf	Oak- pine	Oak- hickory	Oak-gum- cypress		
Thousand acres								
Baker	127.8	34.6	17.6	10.9	39.9	24.8	--	--
Ben Hill	108.9	78.6	10.0	10.3	6.7	3.3	--	--
Berrien	188.2	87.4	12.5	12.2	17.8	58.3	--	--
Brooks	165.6	26.5	12.8	24.5	38.6	53.6	9.6	9.6
Colquitt	149.1	73.4	22.0	24.4	4.9	24.4	--	--
Cook	76.6	29.1	6.3	12.7	--	28.5	--	--
Crisp	70.8	41.1	--	7.4	7.4	14.9	--	--
Decatur	227.9	64.0	37.4	61.1	46.3	19.1	--	--
Dooly	97.8	32.9	11.5	7.6	34.3	11.5	--	--
Early	158.9	53.5	6.9	19.9	30.6	41.1	6.9	6.9
Grady	162.5	16.0	42.2	34.2	30.2	35.9	4.0	4.0
Irwin	115.9	62.3	10.0	11.2	14.5	17.9	--	--
Lanier	89.5	39.5	10.2	11.9	3.0	24.9	--	--
Lowndes	202.6	71.6	34.9	23.2	13.4	59.5	--	--
Miller	65.8	18.8	--	16.9	13.2	14.1	2.8	2.8
Mitchell	130.7	61.3	15.3	16.0	26.7	7.6	3.8	3.8
Seminole	64.8	19.9	4.1	12.4	12.4	16.0	--	--
Thomas	182.8	45.1	26.3	53.4	45.1	12.9	--	--
Tift	73.8	33.9	--	14.5	3.7	21.7	--	--
Turner	89.5	46.9	7.7	7.8	7.7	19.4	--	--
Wilcox	154.5	78.8	6.6	29.5	6.6	33.0	--	--
Worth	180.8	113.4	10.1	13.5	16.8	27.0	--	--
Total	2,884.8	1,128.6	304.4	435.5	419.8	569.4	27.1	27.1

Table 4.--Area of commercial forest land, by stand-size class
and county, 1971

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling- seedling	
- - - - - <u>Thousand acres</u> - - - - -					
Baker	127.8	46.1	31.5	39.3	10.9
Ben Hill	108.9	33.4	30.1	45.4	--
Berrien	188.2	65.6	48.8	58.3	15.5
Brooks	165.6	65.0	29.7	61.2	9.7
Colquitt	149.1	43.9	44.2	56.1	4.9
Cook	76.6	25.4	25.9	25.3	--
Crisp	70.8	26.1	22.2	22.5	--
Decatur	227.9	102.3	57.9	56.3	11.4
Dooly	97.8	40.2	27.1	30.5	--
Early	158.9	41.5	64.5	49.5	3.4
Grady	162.5	90.1	35.9	36.5	--
Irwin	115.9	48.9	31.2	28.0	7.8
Lanier	89.5	27.5	19.7	39.1	3.2
Lowndes	202.6	98.1	51.1	43.7	9.7
Miller	65.8	24.4	14.1	14.1	13.2
Mitchell	130.7	26.9	38.2	65.6	--
Seminole	64.8	20.6	20.2	24.0	--
Thomas	182.8	105.5	32.2	38.6	6.5
Tift	73.8	30.3	25.4	14.5	3.6
Turner	89.5	34.8	19.4	31.5	3.8
Wilcox	154.5	46.1	62.4	42.7	3.3
Worth	180.8	69.6	40.4	67.4	3.4
Total	2,884.8	1,112.3	772.1	890.1	110.3

Table 5.--Area of commercial forest land, by site class and county,
1971

County	All classes	Site class				
		1	2	3	4	5
- - - - - <u>Thousand acres</u> - - - - -						
Baker	127.8	--	--	17.6	67.3	42.9
Ben Hill	108.9	--	--	32.8	72.7	3.4
Berrien	188.2	--	6.6	34.6	116.0	31.0
Brooks	165.6	--	--	63.1	89.7	12.8
Colquitt	149.1	--	--	87.9	56.3	4.9
Cook	76.6	--	3.2	28.5	38.6	6.3
Crisp	70.8	--	--	22.3	41.1	7.4
Decatur	227.9	2.3	--	38.9	134.2	52.5
Dooly	97.8	--	--	59.3	38.5	--
Early	158.9	--	3.4	47.4	101.9	6.2
Grady	162.5	--	10.2	50.2	90.1	12.0
Irwin	115.9	--	--	23.3	89.2	3.4
Lanier	89.5	--	--	--	89.5	--
Lowndes	202.6	--	4.4	53.7	120.3	24.2
Miller	65.8	--	--	8.5	51.7	5.6
Mitchell	130.7	--	--	38.3	81.0	11.4
Seminole	64.8	--	--	12.4	40.0	12.4
Thomas	182.8	--	24.4	99.8	55.3	3.3
Tift	73.8	--	--	26.7	47.1	--
Turner	89.5	--	--	19.3	58.6	11.6
Wilcox	154.5	--	--	39.4	102.0	13.1
Worth	180.8	--	3.4	32.4	124.8	20.2
Total	2,884.8	2.3	55.6	836.4	1,705.9	284.6

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1971

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
----- Thousand acres -----						
Baker	127.8	6.7	6.7	42.4	61.1	10.9
Ben Hill	108.9	--	20.3	59.1	29.5	--
Berrien	188.2	9.9	48.7	80.8	33.3	15.5
Brooks	165.6	9.6	18.2	83.1	45.0	9.7
Colquitt	149.1	4.9	29.5	78.1	31.7	4.9
Cook	76.6	--	31.7	35.4	9.5	--
Crisp	70.8	--	14.9	37.3	18.6	--
Decatur	227.9	3.8	45.0	93.0	74.7	11.4
Dooly	97.8	--	19.1	49.9	28.8	--
Early	158.9	3.4	37.1	77.3	37.7	3.4
Grady	162.5	4.0	10.2	112.4	35.9	--
Irwin	115.9	3.3	36.8	55.7	12.3	7.8
Lanier	89.5	--	15.0	46.0	25.3	3.2
Lowndes	202.6	9.1	30.3	69.2	84.3	9.7
Miller	65.8	--	10.3	22.6	19.7	13.2
Mitchell	130.7	--	35.0	46.0	49.7	--
Seminole	64.8	4.1	8.3	23.5	28.9	--
Thomas	182.8	3.2	16.1	108.7	48.3	6.5
Tift	73.8	--	21.8	44.8	3.6	3.6
Turner	89.5	7.8	11.6	35.4	30.9	3.8
Wilcox	154.5	6.6	23.1	78.9	42.6	3.3
Worth	180.8	3.4	30.3	99.9	43.8	3.4
Total	2,884.8	79.8	520.0	1,379.5	795.2	110.3

^{1/} See stocking standards on page 12.

Table 7.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber				Growing stock						
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	
	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	
	Million board feet					Million cubic feet ^{1/}					
Baker	301.7	215.3	5.6	13.0	67.8	88.3	56.7	3.5	6.1	22.0	
Ben Hill	289.9	257.7	2.6	20.4	9.2	88.1	73.2	1.2	9.9	3.8	
Berrien	514.2	368.3	54.8	75.9	15.2	195.9	120.5	20.9	48.3	6.2	
Brooks	462.6	226.4	62.0	108.9	65.3	161.8	59.5	19.9	55.9	26.5	
Colquitt	442.5	374.5	--	33.0	35.0	134.4	108.5	3.0	12.7	10.2	
Cook	251.6	161.4	7.4	50.0	32.8	89.5	49.4	2.2	24.9	13.0	
Crisp	163.6	116.8	2.8	29.1	14.9	61.8	42.4	0.6	11.7	7.1	
Decatur	799.0	571.6	8.3	125.1	94.0	243.4	156.3	2.7	47.3	37.1	
Dooly	258.7	131.9	50.1	43.7	33.0	86.6	39.5	10.4	18.8	17.9	
Early	376.1	134.6	17.6	97.6	126.3	147.7	52.3	6.7	46.3	42.4	
Grady	626.9	419.4	5.7	89.9	111.9	174.2	102.0	1.4	37.7	33.1	
Irwin	357.1	273.0	25.8	49.7	8.6	131.9	89.6	9.6	28.9	3.8	
Lanier	185.1	136.0	42.2	6.9	--	71.0	44.2	16.8	9.6	0.4	
Lowndes	570.2	301.5	57.7	139.3	71.7	200.9	101.7	19.0	60.7	19.5	
Miller	135.2	69.7	12.3	25.2	28.0	47.2	24.1	3.6	9.9	9.6	
Mitchell	198.9	157.9	11.0	15.7	14.3	91.9	66.1	5.0	12.2	8.6	
Seminole	217.8	182.9	3.2	14.8	16.9	62.7	45.6	1.3	7.5	8.3	
Thomas	878.5	686.3	--	90.6	101.6	219.6	153.7	--	32.8	33.1	
Tift	217.3	156.4	15.7	33.6	11.6	82.5	53.4	4.7	19.2	5.2	
Turner	312.8	168.7	85.9	50.7	7.5	90.4	45.5	23.6	19.4	1.9	
Wilcox	308.6	140.1	44.1	88.0	36.4	123.5	58.2	10.4	40.4	14.5	
Worth	612.6	520.2	14.2	43.6	34.6	167.0	130.2	3.8	20.4	12.6	
Total	8,480.9	5,770.6	529.0	1,244.7	936.6	2,760.3	1,672.6	170.3	580.6	336.8	

^{1/} Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1970

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	--- Million board feet ---					--- Million cubic feet ---				
Baker	18.1	13.7	0.5	0.6	3.3	5.9	4.5	0.4	0.1	0.9
Ben Hill	21.0	19.1	0.1	1.3	0.5	6.8	6.0	(1/)	0.4	0.4
Berrien	45.1	36.9	2.8	4.2	1.2	10.4	8.4	0.5	1.1	0.4
Brooks	28.6	18.4	2.9	4.2	3.1	7.2	3.7	0.6	1.5	1.4
Colquitt	30.4	28.1	--	0.8	1.5	10.4	9.3	0.3	0.4	0.4
Cook	19.4	15.7	0.2	2.0	1.5	5.8	4.2	0.1	0.8	0.7
Crisp	15.7	13.5	0.1	1.1	1.0	3.5	2.8	(1/)	0.5	0.2
Decatur	59.8	50.0	0.3	4.1	5.4	15.8	12.2	0.1	1.8	1.7
Dooly	16.7	10.6	1.5	2.8	1.8	6.3	4.0	0.2	0.8	1.3
Early	28.2	17.0	1.2	5.0	5.0	8.7	4.9	0.1	1.8	1.9
Grady	39.3	29.3	0.1	4.7	5.2	10.1	6.7	(1/)	1.7	1.7
Irwin	26.7	24.5	0.9	1.1	0.2	8.1	6.9	0.2	0.7	0.3
Lanier	15.7	13.4	1.8	0.4	0.1	4.3	3.7	0.4	0.2	(1/)
Lowndes	41.2	31.7	2.8	3.5	3.2	11.3	7.9	0.4	2.1	0.9
Miller	9.2	6.6	0.6	1.0	1.0	2.8	2.1	0.2	0.2	0.3
Mitchell	18.6	16.4	0.4	0.6	1.2	7.7	6.4	0.1	0.3	0.9
Seminole	14.7	13.1	0.3	0.5	0.8	3.8	3.2	--	0.3	0.3
Thomas	47.8	39.2	--	4.6	4.0	11.2	8.2	(1/)	1.6	1.4
Tift	21.9	18.8	0.5	2.2	0.4	5.1	3.9	0.1	0.8	0.3
Turner	18.6	12.8	3.3	2.3	0.2	3.8	2.7	0.5	0.5	0.1
Wilcox	19.9	13.2	1.5	3.8	1.4	8.7	6.4	0.3	1.2	0.8
Worth	41.0	33.8	0.6	4.6	2.0	12.7	10.0	0.2	1.5	1.0
Total	597.6	475.8	22.4	55.4	44.0	170.4	128.1	4.7	20.3	17.3

1/ Less than 50,000 cubic feet.

Table 9.--Annual removals of sawtimber and growing stock on commercial forest land, by species group and county, 1970

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	- - - - - Million board feet					- - - - - Million cubic feet				
Baker	4.2	1.3	--	0.3	2.6	1.3	0.6	--	0.1	0.6
Ben Hill	17.6	17.1	--	0.5	--	4.7	4.5	--	0.1	0.1
Berrien	48.0	45.7	--	0.6	1.7	10.7	9.6	0.1	0.2	0.8
Brooks	29.9	21.1	--	1.6	7.2	7.7	5.4	0.1	0.4	1.8
Colquitt	32.4	30.0	--	2.4	--	8.9	7.3	--	1.1	0.5
Cook	8.6	8.6	--	--	--	2.2	2.2	--	--	--
Crisp	13.6	10.8	--	2.1	0.7	4.1	2.4	--	1.5	0.2
Decatur	24.1	15.3	--	5.5	3.3	7.0	4.4	--	1.6	1.0
Dooly	11.9	6.1	--	3.5	2.3	4.2	2.5	--	1.1	0.6
Early	20.2	16.3	--	2.9	1.0	5.4	3.6	--	1.5	0.3
Grady	19.7	16.2	--	0.6	2.9	4.3	3.3	--	0.2	0.8
Irwin	7.3	7.3	--	--	--	1.9	1.8	--	0.1	--
Lanier	13.1	12.9	--	--	0.2	3.2	2.8	--	--	0.4
Lowndes	47.0	37.3	--	6.5	3.2	12.8	9.4	0.1	1.9	1.4
Miller	1.6	0.8	--	--	0.8	0.7	0.2	0.2	--	0.3
Mitchell	21.9	19.4	--	1.0	1.5	6.2	5.3	--	0.5	0.4
Seminole	17.5	15.1	--	--	2.4	5.0	4.5	--	--	0.5
Thomas	17.8	11.6	--	3.7	2.5	5.9	3.6	--	1.1	1.2
Tift	13.3	12.9	--	0.4	--	2.9	2.7	--	0.2	--
Turner	20.8	18.3	--	2.5	--	4.7	4.2	--	0.5	--
Wilcox	41.9	30.2	--	10.7	1.0	9.7	7.2	--	2.2	0.3
Worth	20.4	15.3	--	2.7	2.4	5.0	3.9	--	0.6	0.5
Total	452.8	369.6	--	47.5	35.7	118.5	91.4	0.5	14.9	11.7

Table 10.--Area of commercial forest land, by forest type and ownership class, 1971

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
- - - - - <u>Thousand acres</u> - - - - -						
Softwood types:						
Longleaf pine	273.4	--	(1/)	31.5	161.2	80.7
Slash pine	855.2	4.1	1.7	90.4	512.8	246.2
Loblolly pine	214.3	--	3.9	16.6	99.8	94.0
Shortleaf pine	35.3	--	--	9.9	6.8	18.6
Pond pine	54.7	--	--	--	33.0	21.7
Total	1,432.9	4.1	5.6	148.4	813.6	461.2
Hardwood types:						
Oak-pine	435.5	--	2.0	40.2	245.8	147.5
Oak-hickory	358.0	--	8.6	14.5	225.0	109.9
Southern scrub oak	61.9	--	--	6.9	34.1	20.9
Oak-gum-cypress	569.4	--	10.5	40.8	387.4	130.7
Elm-ash-cottonwood	27.1	--	--	--	16.7	10.4
Total	1,451.9	--	21.1	102.4	909.0	419.4
All types	2,884.8	4.1	26.7	250.8	1,722.6	880.6

1/ Less than 50 acres.

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1971

Ownership classes	:	All classes	:	Stocking percentage ^{1/}			:
				Over 130	100-130	60-99	
- - - - - Thousand acres - - - - -							
National Forest		4.1	--	--	2.0	2.1	--
Other public		26.7	0.7	3.4	6.3	13.1	3.2
Forest industry		250.8	7.8	48.1	135.7	45.3	13.9
Farmer		1,722.6	33.7	322.5	792.6	512.3	61.5
Misc. private		880.6	37.6	146.0	442.9	222.4	31.7
All ownerships		2,884.8	79.8	520.0	1,379.5	795.2	110.3

1/ See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1971

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
- - - - - Million cubic feet - - - - -					
Sawtimber trees:					
Saw-log portion	1,677.4	1,112.4	109.4	266.0	189.6
Upper-stem portion	169.6	85.7	13.2	49.5	21.2
Total	1,847.0	1,198.1	122.6	315.5	210.8
Poletimber trees	913.3	474.5	47.7	265.1	126.0
All growing-stock trees	2,760.3	1,672.6	170.3	580.6	336.8
Rough trees:					
Sawtimber-size trees	131.2	3.5	2.6	39.6	85.5
Poletimber-size trees	129.4	4.0	2.6	75.9	46.9
Total	260.6	7.5	5.2	115.5	132.4
Rotten trees:					
Sawtimber-size trees	55.6	1.0	4.1	27.3	23.2
Poletimber-size trees	12.6	0.2	0.3	11.0	1.1
Total	68.2	1.2	4.4	38.3	24.3
Salvable dead trees:					
Sawtimber-size trees	6.4	4.0	--	1.0	1.4
Poletimber-size trees	--	--	--	--	--
Total	6.4	4.0	--	1.0	1.4
Total, all timber	3,095.5	1,685.3	179.9	735.4	494.9

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1971

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9			
----- Million cubic feet -----													
Softwood:													
Longleaf pine	362.6	26.5	43.0	63.2	87.6	78.4	37.7	16.2	3.8	6.2	--		
Slash pine	815.9	162.5	151.4	155.4	125.3	95.5	60.8	34.0	19.1	11.1	0.8		
Loblolly pine	393.8	34.1	38.0	50.9	52.8	70.8	54.4	45.2	25.7	20.5	1.4		
Shortleaf pine	49.0	5.0	7.4	4.9	10.4	6.8	6.2	5.1	1.8	1.4	--		
Pond pine	45.3	5.5	4.7	9.9	12.1	6.1	3.9	1.2	0.4	1.5	--		
Spruce pine	14.7	0.2	0.4	1.2	1.9	4.6	1.5	1.6	1.2	1.7	0.4		
Baldcypress	31.8	2.4	4.0	3.7	3.2	5.3	4.7	1.5	1.2	3.5	2.3		
Pondcypress	147.0	18.6	25.3	34.2	29.0	21.0	11.4	4.5	1.1	1.7	0.2		
Eastern redcedar	1.1	0.2	0.1	0.2	0.3	--	--	--	0.3	--	--		
Total softwoods	1,861.2	255.0	274.3	323.6	322.6	288.5	180.6	109.3	54.6	47.6	5.1		
Hardwood:													
Select white oaks ^{1/}	27.6	2.2	3.5	3.9	2.5	2.4	2.4	1.7	2.8	5.0	1.2		
Select red oaks ^{2/}	4.6	--	--	1.2	--	0.4	0.3	0.4	1.0	0.1	1.2		
Other white oaks	87.0	4.8	7.1	12.6	12.2	7.5	6.9	5.8	6.9	15.6	7.5		
Other red oaks	293.3	27.6	42.3	31.1	32.2	28.0	29.1	22.3	19.7	48.6	11.4		
Hickory	21.9	2.3	3.2	2.7	3.5	2.1	1.5	1.5	1.6	2.5	1.0		
Florida maple	7.2	0.8	1.6	2.1	0.5	0.4	0.4	0.6	0.3	0.5	--		
Soft maple	77.4	13.4	13.2	12.1	10.5	10.1	5.7	3.1	3.4	5.5	0.4		
Beech	9.3	--	0.7	0.6	1.2	2.1	1.4	1.2	0.8	0.8	0.5		
Sweetgum	90.4	13.0	13.6	19.1	11.4	10.9	12.5	4.4	2.2	3.3	--		
Tupelo and blackgum	422.4	53.2	74.3	75.9	76.9	57.5	40.5	16.1	10.5	14.6	2.9		
Ash	14.2	1.2	3.1	2.2	3.7	1.6	0.2	1.2	0.5	0.5	--		
Basswood	1.1	--	--	0.9	0.2	--	--	--	--	--	--		
Yellow-poplar	54.0	5.6	4.0	9.6	10.2	7.9	4.8	5.1	2.5	3.4	1.1		
Bay and magnolia	71.6	10.1	12.6	12.5	14.8	10.2	4.2	2.3	2.0	1.4	1.5		
Elm	7.6	0.7	2.1	1.1	1.4	1.2	--	0.8	--	0.3	--		
Black cherry	6.7	0.7	1.4	1.1	1.6	0.3	--	0.3	0.7	0.6	--		
Sycamore	1.2	--	0.3	0.6	--	--	--	0.3	--	--	--		
Hackberry	0.9	0.2	--	--	--	0.2	--	--	--	--	--		
River birch	4.0	--	1.1	0.6	0.7	1.1	0.5	--	--	--	--		
Other eastern hardwoods	25.5	6.0	7.7	2.5	2.9	2.2	1.1	1.3	0.5	1.3	--		
Total hardwoods	1,227.9	141.8	191.8	192.4	187.4	146.1	111.5	68.9	55.2	104.0	28.8		
All species	3,089.1	396.8	466.1	516.0	510.0	434.6	292.1	178.2	109.8	151.6	33.9		

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark and Shumard oaks.

Table 15.--Volume of growing stock on commercial forest land, by species and diameter class, 1971

Species	Diameter class (inches at breast height)												29.0 and larger
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9				
All classes	Million cubic feet												
Softwood:													
Longleaf pine	361.1	20.5	42.8	63.1	87.5	78.2	37.7	15.7	3.4	6.2			--
Slash pine	810.5	161.1	150.3	154.8	125.3	95.5	60.8	34.0	19.1	10.8			0.8
Loblolly pine	321.5	33.4	37.5	50.5	52.6	70.8	54.4	44.9	25.7	20.3			1.4
Shortleaf pine	48.7	4.7	7.4	4.7	10.4	6.8	6.2	5.1	1.8	1.4			--
Pond pine	44.5	5.3	4.7	9.4	12.0	6.1	3.9	1.2	0.4	1.5			--
Spruce pine	14.2	0.2	0.4	1.2	1.9	4.6	1.1	1.6	1.2	1.7			0.4
Baldcypress	27.9	2.4	4.5	3.3	3.2	4.7	4.7	1.2	1.1	2.1			1.2
Pondcypress	141.3	17.1	23.9	33.4	28.5	20.9	11.1	4.2	0.8	1.4			--
Eastern redcedar	1.1	0.2	0.1	0.2	0.3	--	--	--	0.3	--			--
Total softwoods	1,842.9	251.1	271.1	320.6	321.7	287.6	179.9	107.9	53.8	45.4			3.8
Hardwood:													
Select white oaks ^{1/}	25.7	1.9	3.0	3.9	2.2	2.2	2.2	1.7	2.8	4.3			1.2
Select red oaks ^{2/}	4.2	--	--	1.2	--	0.4	--	0.4	1.0	--			1.2
Other white oaks	27.5	2.0	2.9	5.7	3.2	3.1	2.8	1.2	2.2	4.0			0.4
Other red oaks	235.0	24.5	37.7	26.5	28.6	22.7	23.4	18.5	15.8	31.6			5.7
Hickory	19.2	1.9	2.9	2.3	2.9	1.7	1.5	0.9	1.6	2.5			1.0
Florida maple	3.9	0.5	0.4	1.5	0.2	--	0.2	0.6	--	0.5			--
Soft maple	40.7	4.4	5.8	7.0	6.8	6.7	3.1	2.1	2.2	2.2			0.4
Beech	5.8	--	0.4	--	0.8	1.9	1.4	0.8	--	--			0.5
Sweetgum	82.5	10.8	12.9	18.2	10.8	10.3	11.8	3.3	2.0	2.4			--
Tupelo and blackgum	337.5	37.1	50.4	61.7	63.7	51.6	33.9	13.7	7.7	9.9			1.8
Ash	12.1	0.9	2.4	2.0	3.5	1.5	0.2	1.2	--	0.4			--
Basswood	0.9	--	--	0.9	--	--	--	--	--	--			--
Yellow-poplar	51.7	5.1	3.8	9.2	10.2	7.7	4.7	5.0	2.2	3.1			0.7
Bay and magnolia	54.0	7.1	9.4	8.0	13.3	8.3	2.6	1.6	1.3	0.7			1.1
Elm	5.8	0.4	1.2	0.8	1.4	0.8	--	0.8	--	--			--
Black cherry	5.2	0.7	1.1	0.9	1.2	--	--	0.3	0.7	0.3			--
Sycamore	0.9	--	2.3	0.3	--	--	--	0.3	--	--			--
Hackberry	0.3	--	--	--	--	--	--	0.3	--	--			--
River birch	2.4	--	0.2	0.6	0.4	1.1	--	--	--	--			--
Other eastern hardwoods	2.1	0.6	0.6	--	0.4	0.3	--	0.2	--	--			--
Total hardwoods	217.4	27.9	41.9	47.1	47.9	40.3	87.8	52.9	39.5	61.9			14.0
All species	2,760.3	349.0	413.0	471.9	471.6	407.9	267.7	160.8	93.3	107.3			17.8

^{1/} Includes white and swamp chestnut oaks.

^{2/} Includes cherrybark and shumard oaks.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1971

Species	Diameter class (inches at breast height)														
	All			classes			9.0-10.9			11.0-12.9			13.0-14.9		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
----- Million board feet -----															
Softwood:															
Longleaf pine	1,473.4	238.2	422.5	431.8	222.5	98.9	20.7	38.8	--	--	--	--	--	--	--
Slash pine	2,298.8	559.1	557.0	486.1	326.5	190.0	114.6	61.1	4.4	--	--	--	--	--	--
Loblolly pine	1,596.7	155.4	222.8	361.8	300.8	263.3	160.0	124.0	8.6	--	--	--	--	--	--
Shortleaf pine	178.7	14.7	46.9	34.9	32.1	30.5	11.1	8.5	--	--	--	--	--	--	--
Pond pine	150.3	29.2	49.2	31.8	22.7	5.4	2.4	9.6	--	--	--	--	--	--	--
Spruce pine	72.7	5.2	8.3	23.2	5.6	8.2	10.1	10.1	2.6	--	--	--	--	--	--
Baldcypress	100.7	6.2	12.2	22.6	27.2	7.7	5.9	11.4	7.5	--	--	--	--	--	--
Pondcypress	424.2	105.3	117.8	103.9	59.6	24.0	5.3	8.3	--	--	--	--	--	--	--
Eastern redcedar	4.1	0.9	1.3	--	--	--	1.9	--	--	--	--	--	--	--	--
Total softwoods	6,299.6	1,114.2	1,438.0	1,496.1	997.0	629.3	330.1	271.8	23.1	--	--	--	--	--	--
Hardwood:															
Select white oaks ^{1/}	84.1	--	9.3	8.3	11.2	8.0	14.9	25.8	6.6	--	--	--	--	--	--
Select red oaks ^{2/}	15.2	--	--	1.7	--	2.0	4.9	--	6.6	--	--	--	--	--	--
Other white oaks	67.4	--	10.6	10.8	12.3	4.8	8.6	18.4	1.9	--	--	--	--	--	--
Other red oaks	654.1	--	94.5	91.3	106.1	87.0	79.6	165.7	29.9	--	--	--	--	--	--
Hickory	59.0	--	9.5	6.6	7.0	4.6	9.4	15.4	6.5	--	--	--	--	--	--
Florida maple	6.8	--	0.9	--	1.2	2.1	--	2.6	--	--	--	--	--	--	--
Soft maple	97.7	--	21.7	26.8	14.0	10.7	10.7	11.4	2.4	--	--	--	--	--	--
Beech	20.7	--	1.6	7.9	5.7	3.2	--	--	2.3	--	--	--	--	--	--
Sweetgum	174.9	--	37.9	44.3	53.0	16.6	10.3	12.8	--	--	--	--	--	--	--
Tupelo and blackgum	688.3	--	190.6	196.0	145.3	60.1	36.1	52.0	8.2	--	--	--	--	--	--
Ash	22.8	--	9.7	6.0	1.2	4.6	--	1.3	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	154.4	--	32.6	33.0	25.0	25.9	12.9	20.5	4.5	--	--	--	--	--	--
Bay and magnolia	103.0	--	40.9	29.3	10.9	5.8	5.7	3.2	7.2	--	--	--	--	--	--
Elm	12.1	--	5.3	2.7	--	4.1	--	--	--	--	--	--	--	--	--
Black cherry	8.7	--	2.0	--	--	1.3	3.5	1.9	--	--	--	--	--	--	--
Sycamore	1.8	--	--	--	--	1.8	--	--	--	--	--	--	--	--	--
Hackberry	1.4	--	--	--	--	1.4	--	--	--	--	--	--	--	--	--
River birch	5.8	--	1.2	4.6	--	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	3.1	--	0.7	1.4	--	1.0	--	--	--	--	--	--	--	--	--
Total hardwoods	2,181.3	--	469.0	470.7	392.9	245.0	196.6	331.0	76.1	--	--	--	--	--	--
All species	8,480.9	1,114.2	1,907.0	1,966.8	1,389.9	874.3	526.7	602.8	99.2	--	--	--	--	--	--

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark and Shumard oaks.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1970

Species	Net annual growth	Annual timber removals
- - <u>Million cubic feet</u> - -		
Softwood:		
Yellow pines	128.1	91.4
Cypress	4.7	0.4
Other eastern softwoods	(1/)	0.1
Total softwoods	132.8	91.9
Hardwood:		
Select white and red oaks	0.7	0.3
Other white and red oaks	14.7	9.3
Hickory	0.8	1.2
Hard maple	0.2	--
Sweetgum	4.2	2.8
Ash, walnut, and black cherry	0.8	0.2
Yellow-poplar	5.2	4.3
Tupelo and blackgum	6.5	5.7
Bay and magnolia	1.9	0.5
Other eastern hardwoods	2.6	2.3
Total hardwoods	37.6	26.6
All species	170.4	118.5

1/ Negligible.

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1970

Species	Net annual growth	Annual timber removals
- - <u>Million board feet</u> - -		
Softwood:		
Yellow pines	475.8	369.6
Cypress	22.2	--
Other eastern softwoods	0.2	--
Total softwoods	498.2	369.6
Hardwood:		
Select white and red oaks	2.9	1.2
Other white and red oaks	36.8	27.0
Hickory	2.0	4.8
Hard maple	0.3	--
Sweetgum	9.4	8.0
Ash, walnut, and black cherry	1.3	--
Yellow-poplar	19.4	18.6
Tupelo and blackgum	19.1	18.5
Bay and magnolia	2.6	1.4
Other eastern hardwoods	5.6	3.7
Total hardwoods	99.4	83.2
All species	597.6	452.8

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1970

Species	Growing stock	Sawtimber
<u>Million cubic feet</u> <u>Million board feet</u>		
Softwood:		
Yellow pines	10.2	27.5
Cypress	0.4	1.2
Other eastern softwoods	--	--
Total softwoods	10.6	28.7
Hardwood:		
Select white and red oaks	0.3	1.1
Other white and red oaks	4.3	12.9
Hickory	0.3	1.0
Hard maple	0.1	0.2
Sweetgum	0.8	1.5
Ash, walnut, and black cherry	0.1	--
Yellow-poplar	0.1	--
Tupelo and blackgum	1.8	5.6
Bay and magnolia	0.7	1.4
Other eastern hardwoods	0.5	1.0
Total hardwoods	9.0	24.7
All species	19.6	53.4

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1971

Ownership class	All live trees					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
						Million cubic feet				
National Forest	3.7	3.5	--	0.2	--	3.5	3.5	--	--	--
Other public	13.4	6.3	0.4	3.5	3.2	13.3	6.3	0.5	3.5	3.0
Forest industry	290.4	169.1	15.4	54.9	51.0	257.8	168.4	14.9	39.7	34.8
Farmer	1,806.3	958.1	101.9	471.6	274.7	1,607.1	952.6	97.1	371.8	185.6
Miscellaneous private	975.3	544.3	62.2	204.2	164.6	878.6	541.8	57.8	165.6	113.4
All ownerships	3,089.1	1,681.3	179.9	734.4	493.5	2,760.3	1,672.6	170.3	580.6	336.8

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1971

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
						Million board feet				
National Forest	7.1	7.1	--	--	--	--	--	--	--	--
Other public	16.5	11.6	--	3.0	1.9	14.6	10.8	1.3	--	2.5
Forest industry	424.3	316.0	28.8	44.1	35.4	294.9	159.3	20.8	43.5	71.3
Farmer	2,970.3	2,178.7	220.8	416.3	154.5	1,899.8	1,146.9	83.2	341.5	328.2
Miscellaneous private	1,569.8	1,164.7	120.6	201.1	83.4	1,283.6	775.5	53.5	195.2	259.4
All ownerships	4,988.0	3,678.1	370.2	664.5	275.2	3,492.9	2,092.5	158.8	580.2	661.4

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1970

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
National Forest	0.2	0.2	--	--	--	0.8	0.8	--	--	--
Other public	1.4	1.1	(1/)	0.2	0.1	0.6	0.6	--	--	--
Forest industry	17.9	15.0	0.4	1.0	1.5	11.6	9.3	0.1	1.3	0.9
Farmer	98.6	70.8	3.0	14.2	10.6	78.0	57.5	0.3	11.7	8.5
Miscellaneous private	52.3	41.0	1.3	4.9	5.1	27.5	23.2	0.1	1.2	2.3
All ownerships	170.4	128.1	4.7	20.3	17.3	118.5	91.4	0.5	14.9	11.7

1/ Negligible.

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1970

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
National Forest	0.7	0.7	--	--	--	0.6	0.6	--	--	--
Other public	1.7	1.2	(1/)	0.3	0.2	3.2	3.2	--	--	--
Forest industry	62.0	50.9	2.3	2.7	6.1	48.2	39.8	--	5.7	2.7
Farmer	342.0	269.2	12.9	36.1	23.8	294.6	232.3	--	35.8	26.5
Miscellaneous private	191.2	153.8	7.2	16.3	13.9	106.2	93.7	--	6.0	6.5
All ownerships	597.6	475.8	22.4	55.4	44.0	452.8	369.6	--	47.5	35.7

1/ Negligible.

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1971

Forest type, species group, and class of material	All ownerships		Ownership class									
			National Forest		Other public		Forest industry		Farmer		Misc. private	
	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Pine types:												
Growing stock:												
Softwood	1,827	830	942	461	3,022	1,040	1,876	783	2,993	911	2,939	824
Hardwood	90	39	--	--	--	--	55	28	84	39	115	45
Total	1,917	869	942	461	3,022	1,040	1,931	811	3,077	950	3,054	869
Other timber:												
Softwood	--	5	--	--	--	--	--	3	--	--	--	4
Hardwood	--	24	--	26	--	--	--	11	--	29	--	21
Total	--	29	--	26	--	--	--	14	--	35	--	25
Oak-pine type:												
Growing stock:												
Softwood	2,340	581	--	--	192	126	3,851	959	2,126	524	2,372	577
Hardwood	725	310	--	--	129	40	1,277	408	241	285	860	224
Total	3,105	893	--	--	321	175	5,128	1,427	2,767	819	3,232	901
Other timber:												
Softwood	--	--	--	--	--	--	--	7	--	4	--	7
Hardwood	--	117	--	--	--	25	--	75	--	115	--	134
Total	--	123	--	--	--	22	--	82	--	119	--	141
Upland hardwood types:												
Growing stock:												
Softwood	689	150	--	--	--	--	168	80	225	148	920	183
Hardwood	220	405	--	--	--	--	20	55	294	415	1,221	465
Total	1,005	555	--	--	--	--	188	138	1,629	563	2,141	648
Other timber:												
Softwood	--	3	--	--	--	--	--	7	--	2	--	2
Hardwood	--	176	--	--	--	--	--	46	--	190	--	178
Total	--	179	--	--	--	--	--	53	--	192	--	180
Bottomland hardwood types:												
Growing stock:												
Softwood	1,550	419	--	--	870	144	1,449	348	1,250	372	2,211	601
Hardwood	3,170	224	--	--	675	624	2,853	1,061	1,888	868	2,882	1,079
Total	4,720	1,643	--	--	1,545	768	4,302	1,409	3,238	1,240	5,093	1,680
Other timber:												
Softwood	--	14	--	--	--	--	--	4	--	10	--	28
Hardwood	--	25	--	--	--	--	--	533	--	220	--	269
Total	--	267	--	--	--	--	--	537	--	230	--	297
All types:												
Growing stock:												
Softwood	2,184	639	942	461	1,066	305	1,402	665	2,125	615	2,426	682
Hardwood	725	310	--	--	129	40	704	270	726	326	848	320
Total	2,940	957	942	461	1,399	600	2,607	935	2,851	941	3,274	1,002
Other timber:												
Softwood	--	--	--	--	--	--	--	4	--	6	--	8
Hardwood	--	108	--	26	--	4	--	114	--	111	--	103
Total	--	114	--	26	--	4	--	118	--	117	--	111
All timber	2,940	1,071	942	487	1,399	604	2,607	1,053	2,851	1,058	3,274	1,113

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1951, 1960, and 1971

Land use class	Survey completion date			Change 1960-1971
	1951	1960 ^{2/}	1971	
- - - - - <u>Thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	2,146.7	1,988.9	1,868.4	-120.5
Hardwood types	910.8	1,075.6	1,016.4	- 59.2
Total	3,057.5	3,064.5	2,884.8	-179.7
Noncommercial forest land:				
Productive-reserved	--	--	5.5	+ 5.5
Unproductive	--	--	7.3	+ 7.3
Total	--	--	12.8	+ 12.8
Nonforest land:				
Cropland	2,267.1	1,985.8	1,917.6	- 68.2
Pasture and range	135.5	396.9	445.6	+ 48.7
Other	180.7	168.5	337.9	+169.4
Total	2,583.3	2,551.2	2,701.1	+149.9
All land ^{1/}	5,640.8	5,615.7	5,598.7	- 17.0

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revisions in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)									
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger	
SAWTIMBER (in million board feet)												
Softwood	1951	5,292.9	--	--	1,133.0	1,401.6	1,119.9	704.1	447.0	245.9	241.4	
	1960	4,725.4	--	--	1,035.2	1,109.6	1,053.4	620.3	466.4	259.1	181.4	
	1971	6,299.6	--	--	1,114.2	1,438.0	1,496.1	997.0	629.3	330.1	294.9	
Hardwood	1951	2,150.8	--	--	--	477.4	505.8	372.8	249.9	153.2	391.7	
	1960	1,936.6	--	--	--	480.8	477.0	308.2	235.7	156.3	278.6	
	1971	2,181.3	--	--	--	469.0	470.7	392.9	245.0	196.6	407.1	
GROWING STOCK (in million cubic feet)												
Softwood	1951	1,477.7	121.5	217.3	326.0	313.6	215.3	127.0	76.6	40.1	40.3	
	1960	1,349.8	132.5	204.3	297.9	248.2	202.6	111.9	79.9	42.2	30.3	
	1971	1,842.9	251.1	271.1	320.6	321.7	287.6	179.9	107.9	53.8	49.2	
Hardwood	1951	919.8	79.0	142.0	175.8	152.6	129.3	83.3	54.0	30.8	73.0	
	1960	829.4	84.8	123.1	142.8	153.7	121.9	68.9	50.9	31.4	51.9	
	1971	917.4	97.9	141.9	151.3	149.9	120.3	87.8	52.9	39.5	75.9	
ALL LIVE TIMBER (in million cubic feet)												
Softwood	1951	1,491.6	123.3	219.7	329.1	314.5	216.0	127.6	77.6	40.6	43.2	
	1960	1,362.6	134.5	206.6	300.7	249.0	203.2	112.4	81.0	42.8	32.4	
	1971	1,861.2	255.0	274.3	323.6	322.6	288.5	180.6	109.3	54.6	52.7	
Hardwood	1951	1,224.6	114.3	192.1	223.8	190.6	157.0	105.7	70.2	43.1	127.8	
	1960	1,099.4	122.7	166.4	181.8	192.0	148.0	87.5	66.2	43.9	90.9	
	1971	1,227.9	141.8	191.8	192.4	187.4	146.1	111.5	68.9	55.2	132.8	

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Knight, Herbert A.

1971. Forest Statistics for Southwest Georgia, 1971. Southeast. Forest Exp. Sta., USDA Forest Serv. Resource Bull. SE-19, 34 pp.

Acreage of commercial forest land in this 22-county area has declined by 180,000 acres, or almost 6 percent, since 1960. Over this same period, volume of growing-stock timber increased by 581 million cubic feet, or almost 27 percent, reversing a downward trend in volume between 1951 and 1960. Softwoods have accounted for 85 percent of this net gain in volume. In 1970, net growth of growing stock totaled 170 million cubic feet, and exceeded removals by an estimated 52 million cubic feet, or 44 percent. Mortality caused by suppression, fire, weather, insects, disease, and other agents totaled almost 20 million cubic feet and reduced gross growth by 10 percent. Although not one of the leading causes of death, fusiform disease has afflicted an unusually high percentage of the pine stands.

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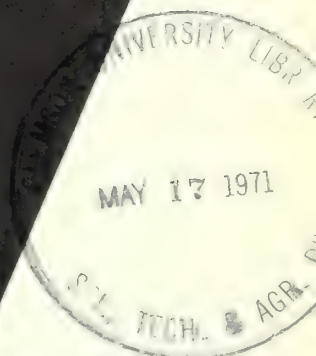
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Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina



FEBRUARY 1971

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FOREST SERVICE
RESOURCE BULLETIN SE-20

FLORIDA'S TIMBER, 1970

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Foreword

This report presents the principal findings of the fourth Forest Survey of Florida's timber resource. The survey was started in July 1968 and completed in June 1970. Findings of the three previous surveys, completed in 1936, 1949, and 1959, provide the basis for measuring changes that have occurred and trends that have developed over the past 34 years. In this report, however, the primary emphasis is on the changes and trends that have taken place since the last survey.

More detailed breakdowns of these data, including many county tables, are found in four Survey Unit reports issued as the survey progressed through the State. Copies of these reports are available from the Southeastern Forest Experiment Station.

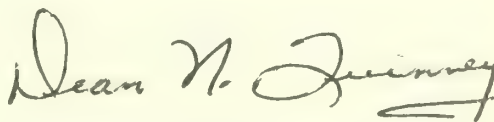
Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and to ascertain rates of timber growth and depletion. It is necessary to

keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The combined efforts of many people have gone into the Forest Survey in Florida. Appreciation is expressed to all Station personnel who participated in the field and office work. The Southeastern Station also gratefully acknowledges the cooperation and substantial assistance provided by the Division of Forestry, Florida Department of Agriculture and Consumer Services.

Joe P. McClure, Project Leader of the Forest Survey in the Southeast, planned and coordinated the various phases of the Survey. Noel D. Cost was in charge of data collection. William H. B. Haines, assisted by Robert A. Cathey, was in charge of the processing and computations. Richard L. Welch was in charge of the remeasurement studies. Herbert A. Knight was in charge of analysis and reporting. Thomas R. Bellamy and John D. Nesbit supervised the field crews, and Nolan D. Snyder was responsible for the special studies on volume, ownership, and utilization.

The discussion of other recognized forest values in Florida—water, fish and wildlife, range, and recreation—is beyond the scope of this report. The purpose of this publication is to appraise the timber situation.



DEAN N. QUINNEY, Assistant Director
Division of Watershed, Utilization,
Resources, and Marketing Research

The authors wish to express their thanks to the Division of Forestry, Florida Department of Agriculture and Consumer Services for providing the cover photograph and the illustrations on pages 4, 11, 16, 21, and 26.

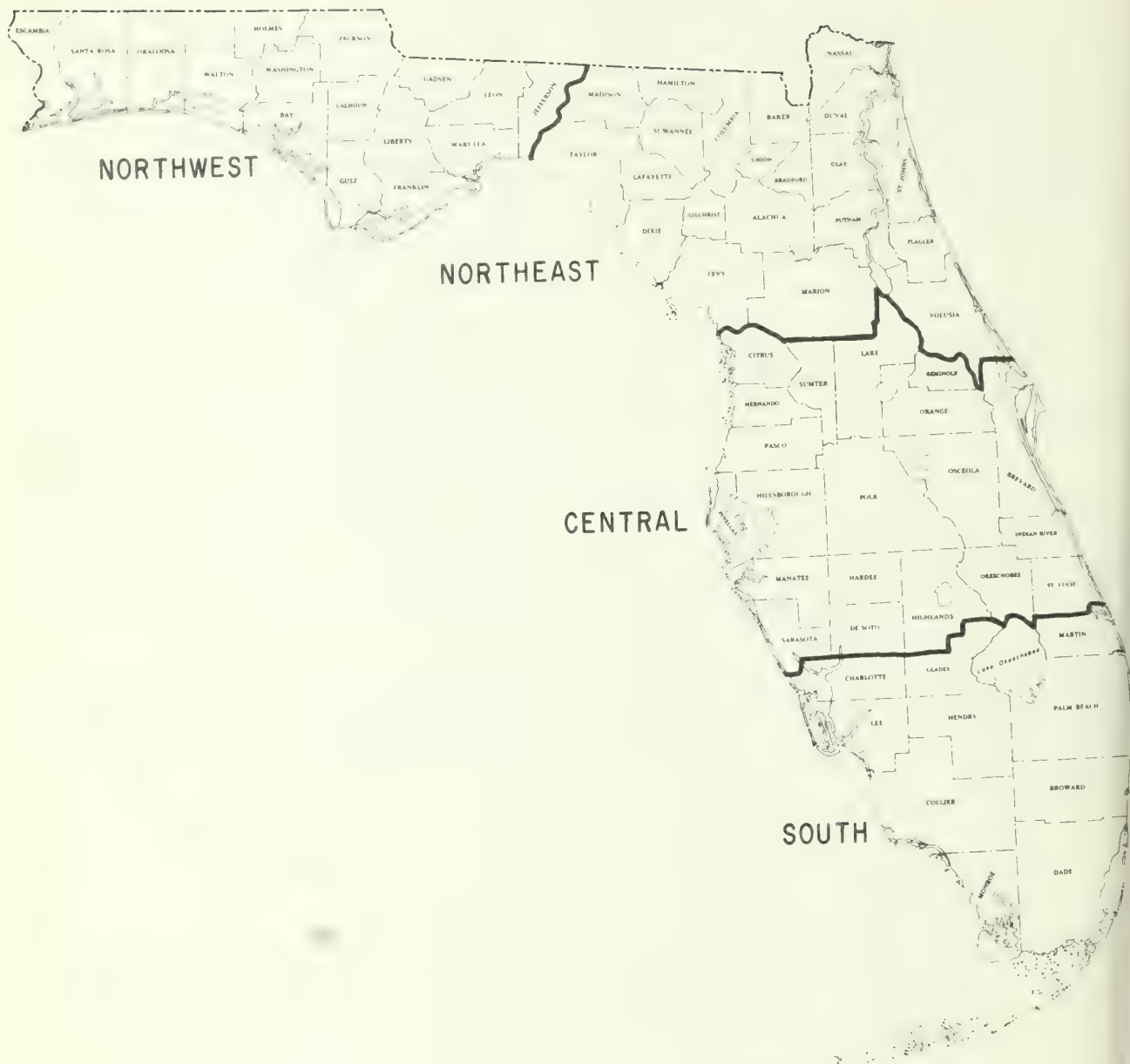


Figure 1.—Forest Survey Units in Florida.

FLORIDA'S TIMBER, 1970

by

HERBERT A. KNIGHT, Associate Resource Analyst

and

JOE P. McCLURE, Principal Resource Analyst

Highlights

Since the third Forest Survey in Florida was completed in 1959—

—area of commercial forest has actually decreased by 0.9 million acres, or about 5 percent, because of land clearing for agricultural use and urban development. An additional 2.7 million acres in South and Central Florida formerly classified as commercial forest were reclassified either to natural rangeland or unproductive forest in this latest survey. Together, these changes have reduced the commercial forest base to 16.2 million acres, which is 46 percent of the total land.

—area of commercial forest owned or controlled by forest industry has increased from 4.5 to over 5.2 million acres, or about 15 percent. Forest industry controls a greater portion of the commercial forest area, about one-third, in Florida than in any other State in the South. Practically all of the decrease in commercial forest area has occurred in the private, nonindustrial holdings which now total 8.9 million acres. The remaining 2.1 million acres are publicly owned.

—area of commercial forest in the slash pine type has increased from 5.3 to over 5.4 million acres, in spite of the sharp reduction in total forest area. Area in the longleaf pine type has dropped sharply from 4.2 to 1.5 million acres. Improved fire protection and the preference given to slash pine in artificial regeneration have contributed to the replacement of longleaf pine with slash

pine. Oak-gum-cypress is the second leading type with almost 4.0 million acres.

—area of nonstocked forest land has been reduced from 6.9 to 2.6 million acres. These lands are less than 16.7 percent stocked with growing-stock trees of any size; however, rough and rotten trees or other inhibiting vegetation occupy much of this growing space. Of course, the reclassification of 2.7 million acres in South and Central Florida accounts for part of the reduction. Nevertheless, the trend still shows that considerable progress has been made through the natural and artificial regeneration of areas formerly nonstocked.

—about 2.0 million acres, or 12 percent, of the commercial forest land have been artificially regenerated, which brings the total area planted up to 2.8 million acres. The peak planting years were 1957 through 1960, when the area planted averaged over 200,000 acres annually. The planting effort has been most extensive in Northeast Florida, where about one out of every four acres of commercial forest has been artificially regenerated.

—stocking on commercial forest land has improved, but almost one-half of the stands are still poorly stocked with growing-stock trees. Average basal area of all live trees 5.0 inches d.b.h. and larger has increased from 30 to 43 square feet per acre, and there are about 87 more sapling-size trees per acre on the average than in 1959.

Rough trees (suitable only for fiber products), rotten trees, and other inhibiting vegetation occupy over one-fifth of the growing space.

—volume of growing stock has increased from about 9.1 to almost 10.9 billion cubic feet, or 20 percent. About 79 percent of this increase has been in softwood, primarily pine. In fact, the buildup in the inventory of slash pine alone accounts for 1.0 billion cubic feet of the net gain. Volume of hardwood growing stock has increased from 3.6 to almost 4.0 billion cubic feet, or about 11 percent. Across the entire State, volume of all growing stock averages 671 cubic feet per acre of commercial forest, and ranges from a high of 712 cubic feet in Northeast Florida to a low of 474 cubic feet in South Florida. By ownership class, volume is fairly well distributed in proportion to forest area owned, except on the National Forests where average volume per acre is one-third greater than the average for the State. The current inventory of growing stock includes over 30 billion board feet of sawtimber.

—net annual growth of growing stock has increased from 427 to 532 million cubic feet, or 25 percent, and now averages 33 cubic feet per acre of commercial forest. This is still less than half of the growth potential of Flor-

ida's existing forests. About 78 percent of this net growth is softwood. In 1969, ingrowth into the 6-inch diameter class accounted for 18 percent of the gross growth, and ranged as high as 20 percent in Northeast Florida where many of the older plantations are reaching poletimber size. Mortality of growing stock totaled almost 71 million cubic feet and reduced gross growth by nearly 12 percent. Over one-half of the mortality was hardwood. Fire, suppression, and weather were the leading identifiable causes of death, although insects and disease continue to take their toll each year. The highest incidence of mortality was found in South and Central Florida.

—it is estimated that the annual removals of growing stock have increased from 292 to 348 million cubic feet, or 19 percent. Pulpwood is the leading timber product in terms of volume, and the annual harvest of pulpwood is increasing rapidly in Florida. A decline in the annual production of lumber apparently bottomed out in 1962, and production since has shown an upward trend. Although it was estimated that net growth of growing stock exceeded removals by 184 million cubic feet, or 53 percent, in 1969, the likelihood is that the increases in annual timber requirements in Florida will exceed the prospective increases in net growth in the future.



Timber Trends

AREA OF COMMERCIAL FOREST DECLINING

The first Forest Survey in Florida was completed in 1936 when the population in the State totaled only about 1.7 million people. Forests occupied over two-thirds of the State's land area, and area of commercial timberland totaled 21.9 million acres. In the Nation, only Oregon had more commercial forest area at the time.

A review of the findings of that first Forest Survey in Florida, however, shows that forest conditions were certainly less than encouraging so far as the future timber supply was concerned. About 5 million acres had been clearcut and burned over until they were practically denuded, and forest land in general was badly understocked. Cattle raising was growing rapidly and most of the pine lands were burned over annually to improve the range for grazing. It was estimated that over half of the gross growth was being lost to mortality each year, and the annual harvest of timber exceeded net growth by over two-thirds.

During the 34 years which have elapsed since that first Forest Survey, many changes have occurred which have greatly altered the timber situation in Florida. As the result of the foresight and combined actions of public, industrial, and other private leaders and landowners, considerable progress has been made toward alleviating many of the problems which confronted forestry efforts in 1936. Most of the State's timberland has been brought under fire protection, some 2.8 million acres of commercial forest have been artificially regenerated, extensive areas have been placed under intensive forest management, better markets for timber products have been developed, and a more favorable relationship has been established between the net annual growth and removals of timber.

Over this same 34-year period, changes have presented forestry with some new problems. The State's climate and general environment has attracted an influx of

an additional 5 million people into the State—a growth rate unmatched anywhere in the South. The housing, transportation, and utility requirements of these people have introduced keen competition among the various land uses, and have brought considerable pressure upon Florida's forest base in terms of the amount of land available for timber production. In addition, areas devoted to citrus, sugar, vegetable and other crop production, and pasture have been greatly expanded, particularly in the South and Central Survey Units (fig. 1). Land speculators have also tied up large areas which otherwise would provide some forestry opportunity. One measured result of all these developments has been a net reduction of 5.7 million acres in the forest base over the past 34 years.

The new Forest Survey findings show that the area of commercial forest land has been reduced to 16.2 million acres, or 46 percent of the total land, and that the erosion of the forest base is continuing. Since 1959, area of commercial forest land has actually decreased by 940,400 acres, or about 5 percent. An additional 2,673,500 acres in South and Central Florida formerly classified as commercial forest were reclassified either to natural rangeland or unproductive forest in this latest survey (table I). Practically no timber or evidence of reproduction occurs on the areas reclassified as rangeland, and very little timber is involved on the areas reclassified as unproductive. Some of these "wild lands" offer forestry opportunities, but apparently will not restock naturally under existing conditions. Until and unless actions are taken to alter these conditions, the continued inclusion of these marginal lands in the forest base would only tend to distort the forestry picture in Florida.

The continued diversion of commercial forest land to other uses at the rate described will eventually place rigid limitations on the amount of timber that can be grown in Florida. Wise and well-planned decisions on land use will be imperative to the achievement of a satisfactory balance among forestry and the other economic interests in the

Table I.—Changes in area of commercial forest land, by Survey Unit, Florida, 1959-1970

Survey Unit	Area of commercial forest land in:		Net change	Changes								
				Total gain	Additions from:		Total loss	Diversions to:				
	Non-forest	Noncommercial forest			Noncommercial forest	Agriculture		Urban and other	Water	Range-land ²		
											1959 ¹	1970
----- <i>Thousand acres</i> -----												
Northeast	7,251.0	7,060.9	— 190.1	323.2	299.8	23.4	513.3	1.5	291.1	209.2	11.5	—
Northwest	5,746.5	5,735.2	— 11.3	321.3	315.1	6.2	332.6	2.1	230.1	100.1	0.3	—
Central	4,961.7	2,708.0	—2,253.7	56.4	56.4	—	2,310.1	8.3	333.2	234.1	13.8	1,720.7
South	1,886.3	727.5	—1,158.8	22.9	22.9	—	1,181.7	³ 441.4	97.1	131.8	—	511.4
State	19,845.5	16,231.6	—3,613.9	723.8	694.2	29.6	4,337.7	453.3	951.5	675.2	25.6	2,232.1

¹These figures differ slightly from reported figures because of revisions in the estimates of land area.

²Classified as nonstocked forest land in 1959, but reclassified as rangeland in this latest Forest Survey.

³Classified as commercial forest land in 1959, but reclassified as unproductive in this latest Forest Survey.

future. Up to some undetermined point, the loss in commercial forest land can be offset by greater timber yields per acre which in fact has been the past pattern. There is still a wide gap in Florida between current average growth per acre and the potential average yield. However, the long-range implications of a rapidly shrinking forest base should not be overlooked.

Almost 79 percent of the commercial forests are in the Northeast and Northwest Survey Units, and these areas are still the mainstay of the State's future timber supply (fig. 2). This does not mean that forestry has been written off in South and Central Florida. In spite of the silvicultural problems and competition from other endeavors, forestry will remain one of the economic alternatives available in much of the inland area of South and Central Florida for some time to come.

FOREST INDUSTRY HOLDINGS INCREASING

The condition of forest lands, the amount and kind of forest management applied, and prospective timber growth all depend to a great extent upon the decisions and interests of the various forest owners. Ownership thus represents a key factor in assessing timber trends. The forest ownership pattern in Florida is somewhat unique in that forest industry controls a greater portion of the commercial forest area than in any other State in the South.

In 1959, forest industry owned 4.5 million acres, or 23 percent of the commercial forest land in Florida. Forest industry now owns or controls over 5.2 million acres, or about one-third of the commercial forest. Almost two-thirds of this industry land is in Northeast Florida where

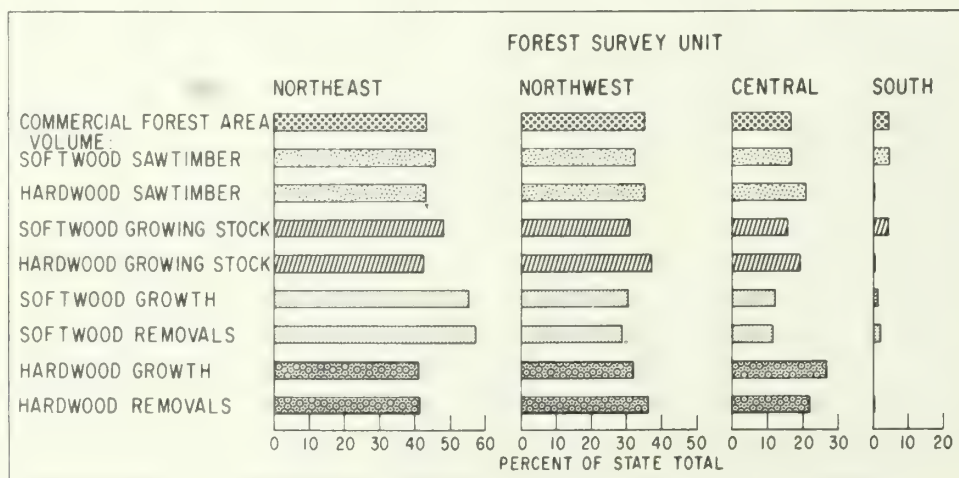


Figure 2.—Relative importance of forest resource by Survey Unit, Florida, 1970.

about half of the total commercial forest is either owned by forest industry or under forest industry management.

It is assumed that most of the industry land will be managed with the primary objective of growing timber. Most of this land is owned by pulp and paper companies which are well equipped with the silvicultural and technological tools to maximize timber growth. With today's growing concern over the management and use of the forests, perhaps it should be emphasized that most of the industry forests are open to the public for nontimber uses, such as hunting and recreation, with only reasonable restrictions. The Survey found various agricultural activities on forest industry lands in certain areas. For the most part they are temporary or intermediate endeavors undertaken to help defray the cost of site preparation required for regeneration.

Another 2.1 million acres, or 13 percent of the commercial forest land, are publicly owned, compared to 2.2 million acres in 1959. Over half of the publicly owned forest land is in the Northwest Survey Unit and is mostly in three large holdings: Apalachicola National Forest, Eglin Air Force Base, and the Blackwater River State Forest. Other similar holdings elsewhere in the State include the Ocala National Forest, Osceola National Forest, the Florida Military Department (Camp Blanding), Withlacoochee State Forest, Avon Park Air Force Range, J. W. Corbett Wildlife Management Area, and the Big Cypress Indian Reservation. These latest survey statistics show that considerable progress has been made toward building up the timber inventories on these public lands. The wise management of these publicly owned forests should help achieve and sustain a well-balanced timber supply in Florida in the future, and at the same time provide enjoyment and other forest values for all the people.

The remaining 8.9 million acres, or 55 percent of the commercial forest land, are owned by farmers and other miscellaneous private individuals and corporations. There is great diversity of interest in timber growing among the thousands of landowners who are grouped into this private, nonindustrial ownership category. Within this broad ownership group, at least two trends merit mention here. First, practically all of the diversion of commercial forest land to other uses has occurred in this group. Second, there has been a substantial shift of farmer-owned forest land to the miscellaneous-private owner class.

Altogether, this sector is still providing half of the annual timber harvest in Florida. This important source

of timber must be nurtured and sustained through forestry programs and policies that will stimulate interest in timber growing and maintain an economic environment which will make forestry endeavors profitable to the landowners. Florida's present and future forest economy depends to a large measure upon the actions taken and progress made in this area.

SLASH PINE REPLACING LONGLEAF PINE

Although cypress and hardwoods occupy about half of the commercial forest land, pine is the lifeblood of Florida's forest industries. At the time of the first Forest Survey in 1936, longleaf pine was the leading forest type and occupied about 45 percent of the total commercial forest land. Today, longleaf pine occupies less than 10 percent of the forest land, and slash pine has taken over as the leading type and occupies one-third of the total forest area. Improved fire protection and the preference of slash pine in artificial regeneration have contributed greatly to the replacement of longleaf pine with slash pine. Although the differences in wood properties and product suitability between these two species do not warrant belaboring the trend, differences in the silvicultural characteristics are recognized and give the findings significance. Generally, pine sites in Florida support a higher level of tree stocking and produce greater timber yields with slash pine than with longleaf pine because of differences in seeding habits and seedling growth.

Another pine species and forest type, sand pine, also shows an upward trend in Florida. The area occupied with sand pine has increased by about 20 percent since 1959 and now totals over a half million acres. About 55 percent of the sand pine forests are publicly owned and the species is prevalent in the Ocala National Forest and Eglin Air Force Base. Sand pine shows considerable promise on selected sites in Florida in terms of prospective timber yields.

Although this analysis has already characterized Florida as a "pine timber" State, the second leading forest type is oak-gum-cypress which occupies almost 4 million acres of the commercial forest land. These forests have the highest average volume of timber per acre of all the timber types in the State. The species which make up this forest type provide a needed balance to the timber supply and are important to many of the State's wood-using industries, particularly the hardwood veneer industry. The oak-gum-cypress timber type occurs throughout the State, and about 92 percent of these forests are privately owned. Accessibility is a problem in many of

these stands and the management of these forests presents foresters with a real challenge. The treatment of these forests will largely determine Florida's future supply of cypress and hardwood timber.

Oak-pine is another important timber type in Florida and occupies almost 1.7 million acres of commercial forest land. Hardwoods are dominant in this type, although pine makes up from 25 to 50 percent of the stocking. The type occupied less than a million acres in 1959, and the increase is attributed to the practice of harvesting the pine and leaving a residual of low-quality hardwood timber and mixed reproduction. Treatment that would reestablish the pine offers the most promising opportunity for improving the timber yields on these lands.

Finally, the 2.3 million acres of oak-hickory forest type, in their present condition, are the least productive of all Florida's forests. This type has the lowest average volume per acre in the State and turkey oak, bluejack, blackjack, and other scrub oaks dominate the stocking in over half of the stands. Other stands within this type contain nothing better than poorly formed live oak and other low quality hardwoods. Almost a third of the volume is in trees which do not qualify as growing stock, even when Forest Survey's most lenient specifications are applied. Most of the dry, upland sites involved will never produce quality hardwood; therefore, removal operations, site preparation, and artificial establishment of pine are required if the growth potential of these areas is to be realized.

LESS FOREST LAND IS NONSTOCKED

In 1959 there were slightly less than 4.0 million acres of sapling and seedling stands in Florida; today there are over 4.5 million acres. Much of this increase can be attributed to the extensive tree planting programs which have been carried on throughout the remeasurement period. There is an average of 365 sapling-sized trees per acre of commercial forest land and about 200 of these trees are considered growing stock. The greatest abundance of young growing-stock trees occurs in the Northeast Survey Unit.

Over this same remeasurement period, the area occupied with poletimber and sawtimber stands has increased from 8.7 to 9.1 million acres, or about 5 percent. Volume of all live trees 5.0 inches d.b.h. and larger averages 773 cubic feet per acre of commercial forest land and about 671 cubic feet of this volume is in growing-stock trees. Volume of sawtimber averages 1,877 board feet per acre.

Area of nonstocked forest land has been reduced from 6.9 to 2.6 million acres since 1959. These stands are less than 16.7 percent stocked with growing-stock trees of any size; however, rough and rotten trees or other inhibiting vegetation occupy much of this growing space. Of course, the reclassification of almost 2.7 million acres in South and Central Florida accounts for part of the reduction in the area of nonstocked forest. Nevertheless, the trend still shows that considerable progress has been made through the natural and artificial regeneration of many areas that were nonstocked in 1959.

MORE TIMBER ON FEWER ACRES

Although area of commercial forest land is declining in Florida, volume of timber is on the increase (fig. 3). Since 1959, volume of growing stock has increased from about 9.1 to almost 10.9 billion cubic feet, or 20 percent. About 79 percent of this increase has been in softwood, primarily southern yellow pine. In fact, the build-up in the inventory of slash pine alone accounted for 1.0 billion cubic feet of the net gain. This means that slash pine has now taken a commanding lead over both cypress and longleaf pine in Florida in terms of timber volume.

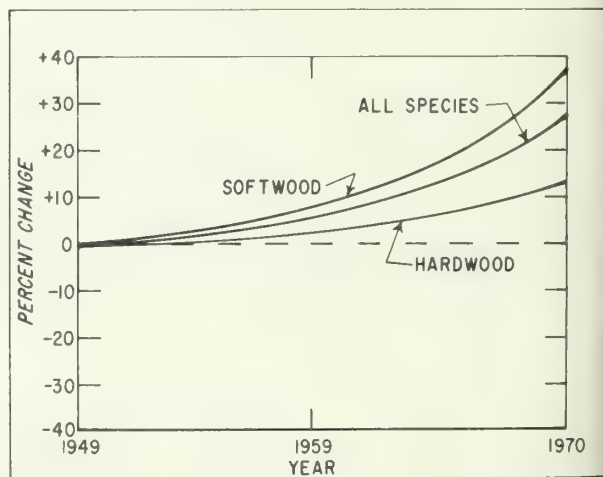


Figure 3.—Percent change in the volume of growing-stock timber in Florida since 1949.

Volume of hardwood growing stock has increased from 3.6 to almost 4.0 billion cubic feet, or about 11 percent. Together, blackgum, sweetgum, and tupelo make up over 1.5 billion cubic feet of the hardwood inventory and have accounted for over half of the increase. Volume of the various species of oak totals almost 1.1 billion cubic feet. Bay and magnolia account for another 0.5 billion cubic feet of the hardwood inventory.

Across the entire State, volume of growing-stock timber averages 671 cubic feet per acre of commercial forest land. By Forest Survey Unit, the average ranges from a high of 712 cubic feet in Northeast Florida to a low of 474 cubic feet in South Florida. By ownership class, volume is fairly well distributed in proportion to forest area owned, except on the National Forests where average volume per acre is a third greater than the average for the State.

In this section, the analysis of volume has been based on cubic volume of growing stock; however, changes in the volume of sawtimber since 1959 follow a similar pattern. Across the State, volume of sawtimber averages 1,877 board feet per acre of commercial forest land.

In addition to the 10.9 billion cubic feet of growing-stock timber in Florida, there is almost 1.7 billion cubic feet of wood in scrub oaks, other poorly formed trees, and trees with an excessive amount of internal rot. Much of this material is suitable for fiber products, fuelwood, or other local use, but it has practically no commercial value to producers of lumber, veneer, and plywood.

Questions continue to arise among the readers of Forest Survey reports concerning the terminology used in the breakdowns and discussion of timber volume. Although the definitions of terms in the Appendix are intended to answer the questions, perhaps a few statements here will help to clarify some of the most common misinterpretations:

1. Volume of all timber includes the net cubic volume of all live trees 5.0 inches d.b.h. and larger measured from the 1-foot stump to 4.0 inches d.o.b. (In table 11, the volume of salvable dead trees is added.)
2. Volume of growing stock differs from volume of all timber in that rough trees and rotten trees are excluded.
3. Volume of sawtimber is the net board-foot volume in the saw-log portion of all live, softwood growing-stock trees 9.0 inches d.b.h. and larger, and all live, hardwood growing-stock trees 11.0 inches d.b.h. and larger.

To provide a basis for valid comparisons, we have applied current volume equations and merchantability standards to the stem counts made in the previous surveys. This means that the volumes published previously have been adjusted, and changes in volume between surveys are based on changes in number of trees by size classes.

ANNUAL GROWTH UP 25 PERCENT

Net annual growth, especially the growth of softwood, has responded to an improvement in stocking and the buildup in inventory (fig. 4). Since 1958, net annual growth of growing stock has increased from about 427 to 532 million cubic feet, or 25 percent, and now averages 33 cubic feet per acre of commercial forest land. About 78 percent of this growth is softwood and the remaining 22 percent is hardwood. In 1969, net growth of growing stock exceeded removals by 184 million cubic feet, or 53 percent.

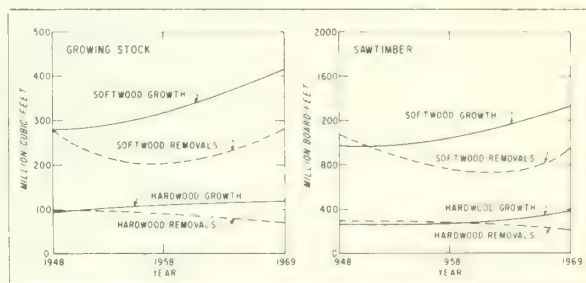


Figure 4.—Trend in net growth and timber removals in Florida since 1948.

The remeasurement of permanent sample plots, established in 1958 and 1959, made possible a more efficient and accurate procedure for determining growth, removals, and mortality. The procedure also provided data for a more detailed breakdown and analysis of these components of change (table II). For example, the findings show that survivor growth accounted for 79 percent of the gross growth in 1969. Survivor growth is the volume increment of growing-stock trees 5.0 inches d.b.h. and larger which were in the inventory at the beginning of the year and were still in the inventory at the end of the year. Ingrowth accounted for 18 percent of the gross growth, but ranged as high as 20 percent in Northeast Florida, where many of the older pine plantations are reaching poletimber size. Ingrowth is the net volume of growing-stock trees which grew into the 6-inch diameter class during the year. Growth on ingrowth, growth on removals before cutting, and growth on mortality before death made up the remaining 3 percent.

In 1969, mortality of growing stock totaled almost 71 million cubic feet and reduced gross growth by nearly 12 percent. Over half of the mortality was hardwood. Fire, suppression, and weather were the leading identifiable causes of death. Disease and insects, however, continue to take their toll each year. The highest incidence of mortality was found in South and Central Florida,

Table II.—Annual components of change in the volume of growing stock on commercial forest land, by Survey Unit and by softwood and hardwood, Florida, 1969

Survey Unit and species group	Gross growth	Components of growth					Mortality	Net growth	Removals	Net change
		Survivor growth	Ingrowth	Growth on ingrowth	Growth on removals	Growth on mortality				
----- Million cubic feet -----										
Northeast:										
Softwood	240.7	181.9	49.8	4.1	4.6	0.3	10.8	229.9	159.3	+ 70.6
Hardwood	65.2	53.0	10.9	0.6	0.4	0.3	17.4	47.8	28.7	+ 19.1
Total	305.9	234.9	60.7	4.7	5.0	0.6	28.2	277.7	188.0	+ 89.7
Northwest:										
Softwood	133.0	105.4	23.2	2.0	2.2	0.2	6.1	126.9	80.1	+ 46.8
Hardwood	46.2	40.2	5.3	0.2	0.4	0.1	9.0	37.2	25.1	+ 12.1
Total	179.2	145.6	28.5	2.2	2.6	0.3	15.1	164.1	105.2	+ 58.9
Central:										
Softwood	59.2	46.8	10.4	1.0	0.8	0.2	7.3	51.9	32.8	+ 19.1
Hardwood	44.0	38.8	4.5	0.2	0.3	0.2	12.7	31.3	15.4	+ 15.9
Total	103.2	85.6	14.9	1.2	1.1	0.4	20.0	83.2	48.2	+ 35.0
South:										
Softwood	12.3	9.9	2.1	0.1	0.1	0.1	5.5	6.8	6.1	+ 0.7
Hardwood	2.0	1.4	0.6	(1)	(1)	(1)	2.0	—	0.4	— 0.4
Total	14.3	11.3	2.7	0.1	0.1	0.1	7.5	6.8	6.5	+ 0.3
State:										
Softwood	445.2	344.0	85.5	7.2	7.7	0.8	29.7	415.5	278.3	+137.2
Hardwood	157.4	133.4	21.3	1.0	1.1	0.6	41.1	116.3	69.6	+ 46.7
Total	602.6	477.4	106.8	8.2	8.8	1.4	70.8	531.8	347.9	+183.9

¹Negligible amount.

where the destructive agents drained off over 20 percent of the gross growth.

Although the 71 million cubic feet of wood in those trees killed by destructive agents in Florida during 1969 could conceivably have provided for all of the State's wood requirements for at least 3 months, it still repre-

sents only a partial measure of the total loss. An additional but undetermined volume was lost through the retardation of growth and the reduction of quality in other trees damaged but not killed. Efforts and programs aimed at reducing mortality and minimizing the annual loss of timber in Florida's forests deserve the continued support of all its citizens.



Timber Products Output

TIMBER IS A LARGE CONTRIBUTOR TO FLORIDA'S ECONOMY

In early 1970, the Division of Forestry, Florida Department of Agriculture and Consumer Services, conducted a Statewide survey of timber products output. The results of this survey and other available data show that the output of roundwood products in Florida totaled 295 million cubic feet in 1969. The stumpage value of this amount of timber is estimated at \$40 million. A conservative estimate of the value added to each dollar of

stumpage is \$25 during the harvesting, primary and secondary manufacturing, transportation, and marketing of this timber. This means that the harvest of 295 million cubic feet of timber contributed an additional \$1 billion to the State's and Nation's economy.

There are also other statistics available which help to provide a measure of the importance of timber in Florida. For example, there are approximately 33,400 people directly employed in the timber-based industries. The estimated annual payroll of the timber-based industries

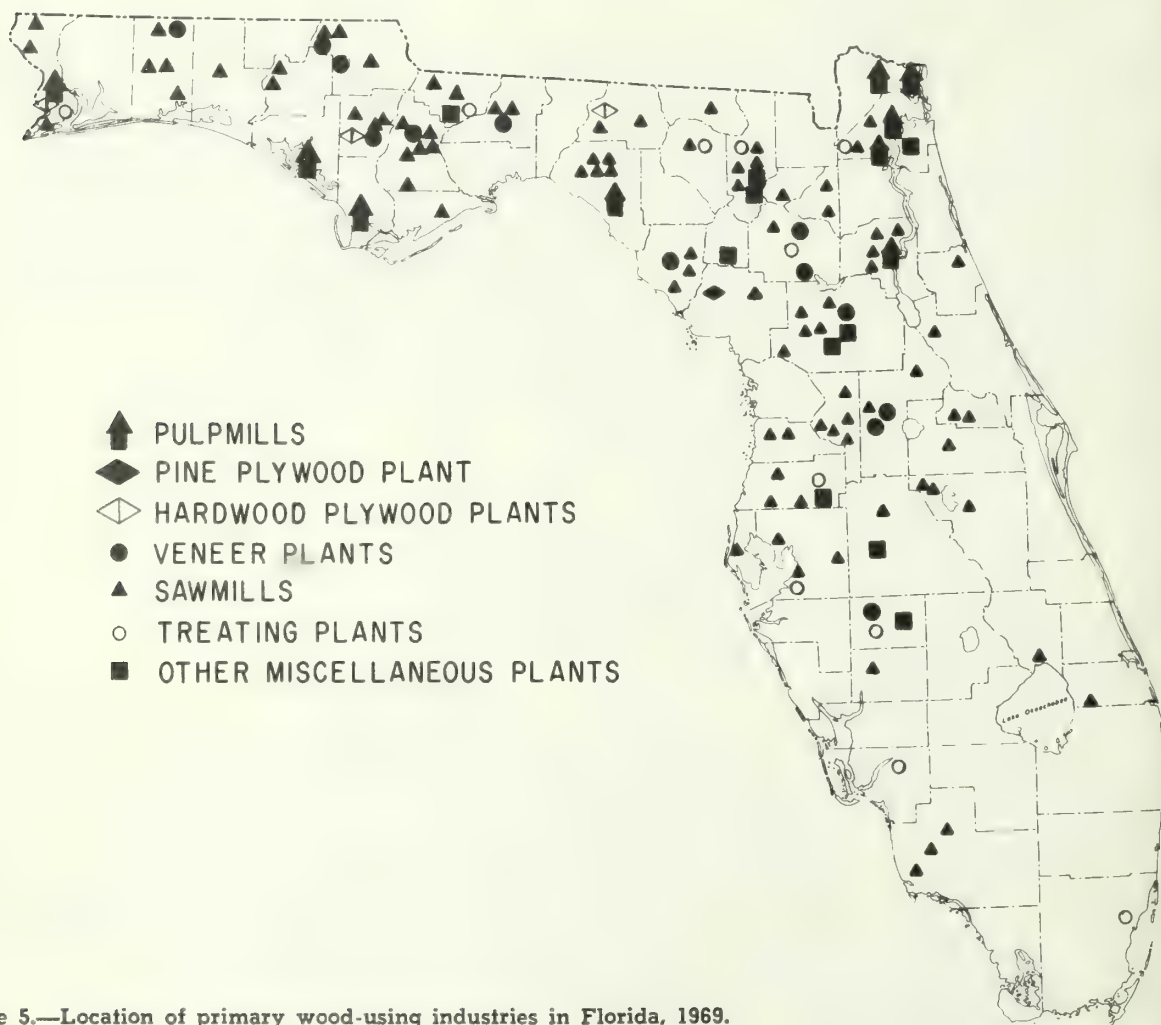


Figure 5.—Location of primary wood-using industries in Florida, 1969.

exceeds \$215 million. This means that the forest products industry ranks second only to the food and kindred products industry in Florida in terms of number of employees and annual payroll.

In 1969, there were 139 primary wood-using plants operating in the State. These plants are highly concentrated in North Florida. Local markets for timber are extremely sparse in the southern part of the State (fig. 5).

PULPWOOD IS THE LEADING TIMBER PRODUCT

Since 1950, the annual production of pulpwood in Florida has increased from 1.4 to over 3.4 million cords, or almost 2½ times (fig. 6). In 1969, production of roundwood and plant byproducts together totaled 249 million cubic feet. About 12 percent of this total was chips and byproducts from sawmills and other wood-using plants and did not represent a direct drain from standing timber. Without this kind of wood utilization, 8 to 9 percent more timber would have had to be harvested to supply the mills in 1969.

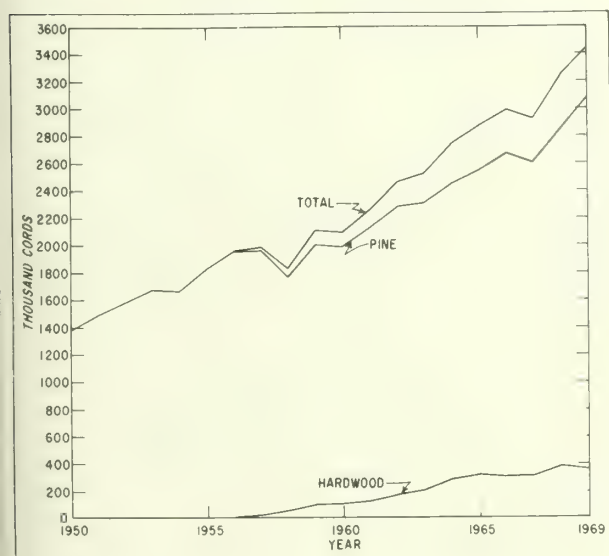


Figure 6.—Pulpwood production in Florida, including byproducts, 1950 to 1969.

Softwoods, primarily southern yellow pine, provided 90 percent of the pulpwood production, which means that only 10 percent of the total came from hardwood. Still, these figures show a trend toward greater use of hardwood. As recent as 1960, only 5 percent of the pulpwood production in Florida was hardwood.

The 1962 study, "Timber Trends in the United States," projected that the production of pulpwood in the Nation would double by 1995. A more recent study, "Projected Demands for Paper and Board," Forest Resource Report No. 18, issued by USDA Forest Service in 1967, indicates that the 1962 level of production will be double some 10 years sooner, or by 1985. Although these projections do not necessarily apply to any particular state, they do suggest that the annual production of pulpwood in Florida can be expected to climb from the present 249 million cubic feet to over 350 million cubic feet within the next 15 years.

In 1969, there were nine pulp mills in operation in Florida. In addition, several pulp mills located outside the State drew wood from Florida.

THE DECLINE IN SAW-LOG OUTPUT HAS ENDED

In contrast to the steady upward trend in pulpwood production, lumber production in Florida declined from 1950 up to 1962 (fig. 7). In fact, the decline in lumber production during this period was of such magnitude that the trend in total annual timber removals was downward throughout most of the fifties. This helps to explain the sizable buildup which has occurred in the sawtimber inventory.

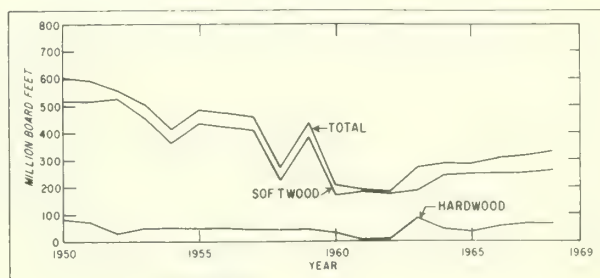


Figure 7.—Lumber production in Florida, 1950 to 1968.
Source: Bureau of the Census.

Apparently, the downward trend in lumber production bottomed out in 1962, and since then the general trend has been upward. The State's industry canvass for 1969 showed that the annual output of saw logs in Florida was back up to 313 million board feet, or 53 million cubic feet. About 82 percent of this volume came from softwood and only 18 percent came from hardwood. There were 90 sawmills in operation within the State.

With the condition of today's economy and particularly with the many complex factors influencing the housing situation, it would be extremely difficult to predict with any reliability the future wood requirements for the lumber industry in Florida. If the housing goals for the Nation are achieved, however, there will likely be a rapid increase in lumber production during this decade. Findings of this fourth Forest Survey indicate that Florida's forests could absorb a sizable increase in the annual harvest of pine sawtimber so long as the increase is orderly, well planned, and tailored to fit the State's current and prospective timber supply. Currently, net growth of softwood sawtimber exceeds the annual removals by about 388 million board feet. This does not mean that this much additional sawtimber volume could be made available for harvest at this time, because there is a need for some further buildup in the inventory before a reasonable growth potential can be realized.

OUTPUT OF VENEER LOGS TOTALS 88 MILLION BOARD FEET

Hardwood veneer has been another leading timber product in Florida over the years, particularly container veneer used by manufacturers of crates and baskets sold to fruit and vegetable shippers. The annual output of veneer logs in Florida is somewhat sensitive to the yields of fruit and vegetables. Crop failures, such as those brought about by late seasonal freezes or abnormally severe winter freezes that extend south of the normal freeze lines, can affect the container veneer markets. Fluctuations in the annual output of veneer logs make it difficult to identify the trends in production.

In 1969 there were 13 veneer plants, three hardwood plywood plants, and one pine plywood plant in operation in Florida. Output of veneer logs totaled 88 million board feet, or almost 16 million cubic feet. Over two-thirds of this volume was hardwood, primarily soft-textured species, such as blackgum, tupelo, sweetgum, bay, magnolia, maple, and yellow-poplar.

For the Nation, the trend in hardwood plywood consumption is upward, with the annual increases averaging about 8 percent over the past decade. Foreign imports of hardwood plywood and veneer, however, have more than doubled during this period. Imports are likely to continue to supply much of the increased demand anticipated for hardwood plywood.

Florida's first and only pine plywood plant is located at Chiefland in Levy County. The plant began operation

in 1967 and has an annual capacity of 90 million square feet (3/8-inch basis). As the pine plywood industry continues to develop in the South, the feasibility of establishing additional plants in Florida will certainly come under careful study because of the favorable trends in the supply of pine sawtimber.

OTHER INDUSTRIAL PRODUCTS

In addition to the pulpmills, sawmills, veneer, and plywood plants, there were at least 23 other primary wood-using plants operating in Florida in 1969. Most of these were treating plants and the leading product was poles. Output of all these miscellaneous products totaled almost 7 million cubic feet, and over 85 percent of this volume came from softwood timber, mainly pine.

Besides the output of industrial timber products, approximately 1.5 million cubic feet of domestic fuelwood was produced. This means that the amount of timber cut for fuelwood each year is almost insignificant. As recent as 1948, the annual production of fuelwood in Florida was well over 20 million cubic feet.

MOST PLANT WOOD RESIDUES USED

The primary wood-using plants in Florida generated an estimated 48 million cubic feet of wood residues in 1969, excluding bark. Over three-fourths of this material was subsequently used for fuel or for the manufacture of pulp and other products. It is estimated that about 11 million cubic feet was not used for any purpose. Over 60 percent of this total was fine residue, such as sawdust and shavings, which still has limited use.

LESS THAN 10 PERCENT OF BARK RESIDUE USED

The greatest volume of residue created at Florida's primary wood-using plants in 1969 was in the form of bark—perhaps as much as 95 million cubic feet. This estimate was determined from calculation of differences in volume outside and inside bark of the total output of roundwood products in 1969. Of course, because of the fissures, these calculations overestimate the solid-bark content; however, they still provide a basis for comprehending the quantity of material involved.

Unlike wood residue, there has been no major breakthrough in the utilization of bark which could absorb the huge quantity involved. Based on the 1969 industry canvass in Florida, less than 10 percent of the bark residue

was used and most of this was for industrial fuel. Currently, a large share is disposed of through incineration in refuse burners. With the growing concern over air quality, other means of disposition will need to be explored more vigorously.

OVER ONE-FIFTH OF REMOVALS NOT USED FOR PRODUCTS

Of the 295 million cubic feet of roundwood products harvested from Florida's forests during 1969, 269 million cubic feet, or over 90 percent, came from growing-stock trees 5.0 inches d.b.h. and larger on commercial forest land. An additional 79 million cubic feet of growing stock was removed from the inventory but was not used

for products. The removals of all growing stock, therefore, totaled 348 million cubic feet. This means that almost 23 percent of the merchantable volume removed from the inventory was either left in the woods as logging residue or was removed by land clearing, urban development, and other land-use changes where the timber was not used.

About 80 percent of the growing-stock removals was softwood and only 20 percent was hardwood. Almost one-half of the unused material, however, was hardwood. The scarcity of local markets for primary wood products in South and Central Florida, where so much of the development and land-use change has occurred, probably contributed to the poor utilization.



Timber Supply Outlook

The preceding chapters of this report describe an improved timber supply in Florida. There has been a 20-percent increase in the inventory volume of growing stock since 1959, and net annual growth exceeds removals by 53 percent. The renewal of Florida's forests to the extent described has not been an easy task nor will its continuation be easily sustained. Although the supply of timber for the next decade or longer is already fairly well determined by actions already taken, the demands for timber could increase sharply over the current level. This appraisal of the timber situation, therefore, would be incomplete if it did not provide a basis for measuring the amount of timber which could be harvested over the next few decades without any serious overcutting.

The amount of growth over removals certainly establishes the limit to which cut could be increased without any depletion in the inventory. It should be remembered, however, that even with the buildup that has occurred in the inventory, volume of growing stock averages only 671 cubic feet and volume of sawtimber only 1,877 board feet per acre of commercial forest land. At least 8 million acres are still poorly stocked with growing-stock trees, which helps to explain why net annual growth averages only 33 cubic feet per acre, or less than one-half the potential. The point to be made is that there is an obvious need for further improvement in the stocking and a further buildup in inventory. Therefore, even if new markets were made available, it would not be to the long-term advantage of forestry interests in Florida to suddenly increase the annual harvest of timber by 184 million cubic feet, the amount of growth over removals estimated for 1969.

Nevertheless, the survey findings clearly indicate that some further expansion in the timber-based industries is possible now and in the future, from the standpoint of the timber supply. The county and unit statistics provided by Forest Survey in other reports released over the past two years should be used to help identify those areas where the timber supply could sustain increased wood requirements.

PROSPECTIVE AVAILABLE CUT WILL ALMOST DOUBLE BY 2000

A stand projection program developed at the Southeastern Station was used to project the current timber supply in Florida to the year 2000. The results of this projection are shown in table 28 and indicate a prospective available cut of 673 million cubic feet annually by the end of this century. This is almost 94 percent greater than the total volume of removals estimated for growing stock in 1969. The projection also allows for a further buildup in the inventory from the present 10.9 billion cubic feet to 13.4 billion cubic feet.

The primary control in this projection was an assumption that the current margin between growth and removals will gradually diminish over the next 30 years, until growth and removals are in balance by the year 2000. Current growth and mortality rates were applied throughout the projection, and it was assumed that increased yields per acre would continue to offset the reduction in area of commercial forest land.

Separate projections were made for softwoods and hardwoods (fig. 8). Although hardwoods make up over one-third of the current inventory, the projection results show that softwoods will provide almost 80 percent of the increase in prospective available cut of growing stock and over 90 percent of the prospective increase in available sawtimber. This means that the timber supply outlook for softwoods is much brighter than for hardwoods.

Over the 30-year period covered by this projection, an increasing share of the cut will come from the thinning and harvesting of pine plantations. *Tree Planters' Notes* show that almost 2.9 million acres had been planted in Florida through June 30, 1969 (table III). The peak planting years were 1957 through 1960, when the area planted averaged over 200,000 acres annually. The average dropped to around 140,000 acres in the mid-sixties but has increased again in recent years. During fiscal year 1969, about 162,000 acres were planted.

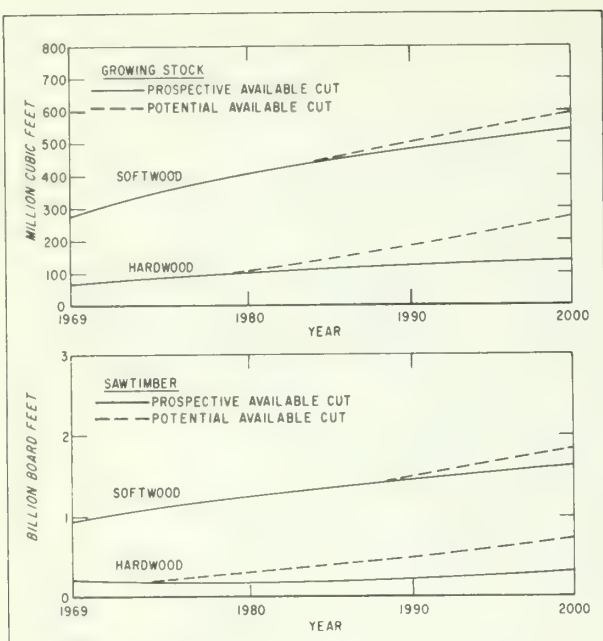


Figure 8.—Prospective and potential available cut, Florida, 1969-2000.

Table III.—Acres of forest planting,¹ by ownership class, Florida, 1959-1969

Fiscal year	Ownership class				All owner- ships	Accumu- lative total
	National Forest	Other public	Forest industry	Other private		
----- Acres -----						
						² 1,063,299
1959	7,173	4,391	55,572	137,017	204,153	1,267,452
1960	4,970	4,265	57,418	132,310	198,963	1,466,415
1961	4,323	4,884	99,189	71,532	179,928	1,646,343
1962	3,330	8,610	82,776	53,813	148,529	1,794,872
1963	2,580	12,407	84,445	41,151	140,583	1,935,455
1964	4,881	10,462	72,363	56,457	144,163	2,079,618
1965	5,933	10,295	81,641	42,233	140,102	2,219,720
1966	6,905	14,894	80,580	44,609	146,988	2,366,708
1967	8,228	11,650	89,511	48,447	157,836	2,524,544
1968	10,144	10,184	105,958	43,986	170,272	2,694,816
1969	13,221	10,021	112,909	25,694	161,845	2,856,661

¹Includes acres of planting by direct seeding. Source: U. S. Department of Agriculture, Forest Service, **Tree Planters' Notes**, 1959-1969.

²Accumulative total prior to FY 1959.

Table IV. Area of commercial forest land, by stand origin and Survey Unit, Florida, 1970

Stand origin	All Survey Units		Survey Unit							
			Northeast		Northwest		Central		South	
	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>
Natural stands with no evidence of artificial regeneration	13,429.2	82.7	5,340.4	75.6	4,819.9	84.1	2,573.1	95.0	695.8	95.6
Stands originating wholly or in part from artificial regeneration since 1959	2,073.9	12.8	1,310.3	18.6	626.4	10.9	109.2	4.0	28.0	3.9
Stands originating wholly or in part from artificial regeneration prior to 1959	728.5	4.5	410.2	5.8	288.9	5.0	25.7	1.0	3.7	0.5
All stands	16,231.6	100.0	7,060.9	100.0	5,735.2	100.0	2,708.0	100.0	727.5	100.0

The Forest Survey findings confirm that these planting figures are fairly reliable. For example, the Forest Survey showed that there was evidence of artificial regeneration on 2.8 million acres, or 17 percent of the total commercial forest (table IV). The planting effort has been most extensive in Northeast Florida where about 1 out of every 4 acres of commercial forest has been artificially regenerated. Slash pine has been the predominant species used for tree planting.

In contrast to the bright outlook for the pine timber supply in Florida, based largely upon the tremendous planting program, the outlook for hardwood is somewhat vague and uncertain. Unlike the pine supply, the supply of hardwood over this 30-year projection period will be almost entirely dependent upon natural stands where there is less control over species composition, spacing, and yields. Most of the existing hardwood stands have been heavily cut, with relatively little thought and effort given to their regeneration outside of protection against fire. Stands in general are cluttered with undesirable and poor quality trees, as evidenced by the fact that two out of every five hardwood trees 5.0 inches d.b.h. and larger fail to meet Forest Survey's minimum requirements for growing stock because of roughness, poor form, or excessive internal rot. Almost one-fifth of the hardwood growth each year is being added onto these rough and rotten trees which have no prospective value for saw logs and veneer logs.

The average annual growth rate for hardwood growing stock in Florida is only about 3 percent, or half the rate for softwoods. This low growth rate is attributed to the poor condition of so many of the stands, plus the fact that hardwoods occupy some 3 million acres which are better suited for growing pine.

Although Florida's forests are and will remain heavily oriented toward the production of pine, hardwood is an important part of the timber resource and gives needed

balance to the wood supply. It is estimated that there are approximately 4 million acres of commercial forest land in the State where site conditions favor the growth of hardwood. Although no accelerated hardwood management was assumed in this projection, the results show a prospective increase in the available cut of hardwood sawtimber of less than 30 percent over current levels of removal through year 2000. The same projection, however, shows a more optimistic outlook for the prospective available cut from hardwood poletimber.

POTENTIAL AVAILABLE CUT IS AT LEAST 2½ TIMES CURRENT LEVEL

A second projection was made to obtain estimates of potential available cut based upon reasonable assumptions about the gains which could be made in net annual growth through accelerated timber management over the next 30 years. Results from this projection indicate a potential available cut of 843 million cubic feet by year 2000, or 25 percent more than the prospective available cut. The potential available cut of sawtimber climbed to 2.5 billion board feet, compared to 1.9 billion board feet in the prospective projection. As might be expected, the potential projection shows that greater gains are possible in the future supply of hardwood through accelerated management efforts than for softwoods (fig. 8).

To sustain an annual cut of 843 million cubic feet on 16.2 million acres of commercial forest land would require that net annual growth be increased from the current average of 33 cubic feet per acre to 52 cubic feet per acre. Although an average annual growth of 52 cubic feet per acre is well below the potential, it does represent a reasonable measure of the gain that could be achieved in 30 years, particularly if one takes into consideration the likelihood of a further reduction in forest area. According to the site data collected in Florida, the growth potential is around 70 cubic feet per acre.

The basic assumptions used in the projection of potential available cut were as follows:

1. Some 7.4 million acres of nonstocked and poorly stocked forest land can be regenerated with desirable trees either naturally or artificially, by 1985.

2. The average basal area of growing-stock trees 5.0 inches d.b.h. and larger can be increased from the present 35 to 60 square feet per acre by 2000.

3. Mortality rates can be gradually reduced to one-fourth the current rates by 2000.

4. Net annual growth can be gradually increased to three-fourths of the potential estimated from the Forest Survey site classifications by 2000.

5. Any further reduction in the area of commercial forest land will be offset by increased yields per acre through 2000.

MANY FACTORS DETERMINE TIMBER AVAILABILITY

The primary objective of the Forest Survey in Florida was to measure the physical attributes of the total timber resource exclusive of the complex economic and social factors which determine the volume of timber available to the open markets at a particular point in time. The volume of net annual growth of growing stock, estimated at 532 million cubic feet, establishes the maximum measure of current availability without inviting a reduction in the inventory. When the current volume of annual removals, 348 million cubic feet, is subtracted from this figure it leaves an apparent "surplus" of 184 million cubic feet. Although timber owners in Florida might be unwilling to sell this much additional timber each year at existing prices, the figure still represents Forest Survey's best estimate of the possible increase in the annual cut.

When this volume of growth over removal is examined in terms of ownership, the findings show that 44 million cubic feet, or 24 percent of the total, is accumulating on forest industry lands. This volume is available to existing industry for the expansion of capacity, but would normally not be available to competing industry moving into the State. Another 49 million cubic feet, or 26 percent of the total, is accumulating on National Forests and other public lands. Here, long-term management plans usually determine the volume cut each year, and this volume is usually sold on bid and is therefore available to all on an equal basis. Finally, the remaining 91 million cubic feet, or 50 percent, is accumulating on private, nonindustrial lands where availability is usually determined through the normal negotiations among interested buyers and willing sellers. In the assessment of availability it should be remembered that about 5 percent of the private, nonindustrial land is under some type of lease to forest industry.

Of course, the volume of growth over removal and its ownership are only two of the many physical factors which influence availability. Some timber is not economically available to particular users because of location, low volumes per acre, small size, and other undesirable characteristics. Tables 31, 32, and 33 in the

appendix are presented to help guide decisions concerning availability and operability. For example, only 38 percent of the commercial forest land in Florida has 1,500 or more board feet of sawtimber per acre. Furthermore, about one-third of the forest land with 1,500 or more board feet per acre is located in deep swamps, bays, along stream margins, or other physiographic classes where accessibility and logging conditions are difficult and where only certain species can grow.

Although the tables just referred to, along with most of the other tables in this report, are for the entire State, Forest Survey at the Southeastern Station can generate similar tables for smaller, specified areas of interest, upon request, to help answer availability questions and assist in the future development and expansion of forest industry in Florida.

QUALITY MAKEUP OF INVENTORY LIMITS UTILIZATION

Up to now, this analysis has dwelled mainly on the quantity of timber in Florida. Some assessment of the quality of this timber is also needed. The question arises as to how much of the 12.5 billion cubic feet of wood in live trees 5.0 inches d.b.h. and larger is suitable for the production of saw logs, veneer logs, poles, and other products where quality rather than quantity is often the limiting factor. Although advances have been made and changes have taken place in the utilization of wood, high-quality timber is still required if forest products are to

retain their relative position with respect to competitive substitutes.

The Forest Survey statistics explain why some of the plants are experiencing difficulties in procuring an adequate supply of high-quality timber during peak periods of demand from an inventory that totals 12.5 billion cubic feet. First of all, about 1.7 billion cubic feet, or 13 percent of the inventory, is in trees which do not qualify as growing stock because of species, roughness, poor form, or internal rot. Another 4.0 billion cubic feet, or 32 percent, is in trees still too small for sawtimber. When another 6 percent is deducted for volume in the upper-stem portions of sawtimber trees, only 6.2 billion cubic feet, or half of the original total remains. Of this amount, only 3.5 billion cubic feet is in pine trees of grade 1 and 2 quality, or in hardwood trees that contain grade 1 and 2 logs. Finally, an undetermined amount of this high-quality timber is scattered instead of concentrated in operable stands for harvest.

These statistics are not presented to imply that timber in Florida is inferior to timber in other States. Instead, the statistics are presented to emphasize the importance of careful evaluation of the timber supply both from the standpoint of quantity and quality during plant feasibility studies. Another point to be made is that there is a need to channel the better quality timber into those products which require high-quality trees so that the potential value of the resource can be realized.



Management Opportunities

The recommendation of specific forestry treatments and programs falls outside the scope of Forest Survey and this report; however, this chapter will elaborate on some of the opportunities for increasing the supply of timber as suggested by the Survey findings. Although net annual growth of timber is less than half the potential estimated for Florida's forests, one might conclude that there is no real need for concern over ways to increase timber yields so long as growth is exceeding removals. Those people engaged in the management of forest land and charged with the responsibility of achieving and sustaining an optimum balance between the supply and demand of this resource know better than to accept such a conclusion. Although timber is one of the few renewable natural resources, forestry is a long-term undertaking and most changes in forestry practices and programs do not produce tangible results for many years after their implementation. If efforts to increase the supply are delayed until shortages actually develop, the resource loses its competitive position and industry relying upon the resource can be driven out of business. The history of just about every major timber producing region in the Nation tends to confirm this fact.

Forest industry's position itself has changed, particularly in Florida and the South where commitments have already been made to develop the region's third forest. Plants are larger and more permanent, larger investments are involved, and the nontimber values of the forest resource to the overall environment are more widely recognized than perhaps ever before. Those people who voice displeasure over the expenditure of money and effort to grow more timber to harvest for products must take into consideration that no other resource has such potential for providing for so many of our basic needs. On the other hand, those people charged with the responsibility of managing the forests and engaged in the removal and utilization of timber from them must take into consideration the total effect of their actions on the overall environment.

There are several generally recognized ways of increasing the timber supply in Florida: better utilization and protection of the existing supply; exertion of greater control over the stocking, structure, and species composition of existing timber stands through intermediate treatments; regeneration of nonstocked and poorly stocked stands; application of proved silvicultural practices by more private landowners; and finally, expansion of the area of commercial forest land by planting idle acres with trees. Although the Forest Survey statistics provide a measure of the potential gains which are theoretically possible through improved protection and utilization, the optimum allocation of limited funds and resources for increasing the timber supply is a difficult task. From the economic standpoint, the basic question is whether or not the expected returns from additional expenditures for better protection and utilization exceed the expected returns if the same funds and resources were used instead to accelerate timber growth. In some cases, the latter may be a more promising alternative. Before the selection and implementation of any major program or action, it should be examined from the standpoint of its cost and expected returns, its chances of success, its potential gain as compared with the alternatives, and its effect on the total environment.

REDUCE LOSS TO MORTALITY

In 1969, mortality of growing stock totaled almost 71 million cubic feet and reduced gross growth by nearly 12 percent. An additional but undetermined volume was lost to cull, retardation of growth, and reduction of quality in other trees damaged but not killed by fire, insects, disease, suppression, weather, and other agents. To the extent that losses could be reduced, the supply of timber in Florida could be increased through intensification of the protection efforts. Mortality certainly cannot be eliminated entirely simply because man has little control over many of the destructive agents which bring it about; therefore, the objectives must be limited to the achievement of some acceptable minimum.

Wildfire is one of the causes of mortality over which man has the greatest control. Although over 90 percent of Florida's forests and "wild lands" are under organized protection, fire remains one of the leading causes of death. This does not discredit the fine protection record in Florida in recent years. Since 1959, less than 1 percent of the protected areas has burned over by wildfire annually except for 1962 when almost 370,000 acres were burned (table V). Up until about 1956, it was not uncommon for several hundred thousand acres of Florida's forest to burn over during a year's time. Control costs are high and the full cooperation of the general public is essential to the prevention of unnecessary loss to fire. Few sights are more depressing than that of a forest blackened by a devastating fire.

Table V.—Forest area under fire protection, protected area burned, number of fires, and average size of fires, Florida, 1959-1969¹

Year	Forest area protected		Protected area burned		Fires	Average size of fires
	Thousand acres	Percent	Thousand acres	Percent		
1959	18,086	83.52	48	0.27	3,930	12
1960	18,866	85.23	119	0.63	5,331	22
1961	18,608	85.06	98	0.53	6,372	15
1962	18,717	85.71	369	1.97	8,808	42
1963	19,540	89.64	97	0.50	7,217	13
1964	20,036	89.85	70	0.35	5,381	13
1965	20,527	98.46	105	0.51	5,823	18
1966	18,117	86.90	81	0.45	5,484	15
1967	18,450	88.52	176	0.95	7,631	23
1968	18,905	90.65	140	0.74	7,560	19
1969	19,319	93.27	66	0.34	5,029	13

¹Source: U. S. Department of Agriculture, Forest Service, **Forest Fire Statistics, 1959-1969**.

Contingency plans for the widescale salvage of killed and damaged timber can certainly help to minimize losses when natural catastrophes occur. Although Florida's forests are seldom subjected to such weather phenomena as ice storms, damage from hurricanes is a continual threat. The devastation of the forests of lower Mississippi and Louisiana brought about by Hurricane Camille in 1969 stands as a classic example of this kind of threat.

Insect and disease outbreaks, along with suppression from overstocking, are other leading causes of mortality. These are usually more subtle in their attacks upon the forest than wildfire and hurricanes. Nevertheless, their toll shows up in the survey findings. Here, a great deal of control can be exerted through silvicultural practices which reduce the risks. For example, in regeneration efforts, it is important that the tree species be properly matched with the site and that the stand be maintained in a vigorous condition throughout the rotation.

IMPROVE TIMBER UTILIZATION

In 1969, the volume of logging residues and other removals not used for products, together with plant residues, totaled an estimated 90 million cubic feet. Here again, some minimum amount of waste must be tolerated; however, if only half of this wood fiber could be channeled into use, the annual output of timber products could be increased by 14 percent without any increase in timber removals. Although considerable progress has been made in wood utilization, further research and continued efforts become more important in this area as attention is focused on ways to minimize waste and reduce all forms of pollution throughout the production and manufacturing processes of all our products.

In addition to the unused volume in trees cut or destroyed, the volume left standing in rough and rotten trees is a type of residue in the broad sense. Because of high grading, or the removal of only the better trees at time of harvest, an inventory of almost 1.7 billion cubic feet has accumulated in rough and rotten trees. Such trees occupy one-sixth of the growing space in the commercial forests in Florida and are retarding the regeneration and development of desirable trees in many stands. Most of this volume can be used for pulpwood and other fiber products if it is removed along with the better trees at time of harvest. Once these trees are left as residuals, the opportunity for their utilization is greatly diminished because their low value will not fully compensate for the cost of removal. The most logical long-term solution to this problem is to minimize the accumulation of poor quality timber in the inventory through improved forest management and harvesting practices. In the meantime, new ways to remove, market, and utilize a greater proportion of the 1.7 billion cubic feet that is already in the inventory need to be explored. It is estimated that only 12 million cubic feet, or less than 4 percent of the total output of roundwood products, came from this source in 1969.

Another way to improve utilization is to be more selective in the use of the better quality timber for those products which require such input. Such practices can significantly enhance the value received from the timber harvested. Of course, the markets available in a particular area largely determine the kind of products for which the timber is used. For example, over one-half of the pine sawtimber harvested in Florida in 1969 was used for pulpwood. Some of this sawtimber came from company-owned lands where the forest management objective is to maximize the yield of wood fiber per acre for pulpwood. Nevertheless, this heavy use of sawtimber for a

fiber product seems somewhat inconsistent with the anticipated short supply of sawtimber in the years ahead. The finding suggests a need for the development of more diversified timber markets where more of the sawtimber could be channeled into lumber and other structural products. With the technological advances which have been made in equipment for handling timber products, it would seem that more concentration yards are needed where the timber can be sorted according to its potential value and use.

IMPROVE CONDITION OF EXISTING FORESTS

If the total area of commercial forest land in Florida is broken down into the proportions occupied by the various tree classes, stand sizes, and broad forest types, the Forest Survey findings provide a measure of the various conditions which suggest the need for some kind of silvicultural action (table VI). These findings indicate that about 5.7 million acres, or 35 percent of the commercial forests, are fairly well stocked with desirable trees and that current conditions suggest no action that would significantly increase prospective yields. Sawtimber occupies over one-third of the 5.7 million acres.

Another 3.1 million acres, or 19 percent of the commercial forests, are stocked with acceptable trees which can be carried through to rotation with reasonable yields if the better trees are favored through intermediate treatments. Stocking and conditions are less than desirable

on these acres at this time, but a manageable stand does exist. On the 2.5 million acres of sawtimber and pole-timber stands in this condition, the alternative to trying to improve these stands through intermediate treatment is harvest and regeneration, providing markets are available for poor quality trees.

REGENERATE NONSTOCKED AND POORLY STOCKED STANDS

On about 7.4 million acres, or 46 percent of the commercial forests, prospective yields are almost nil in terms of value until the stands are regenerated. In this condition, there is either an absence of stocking altogether or the area is occupied with rough trees, rotten trees, and other inhibiting vegetation. In fact, on about 4.0 million acres in this condition, site preparation to remove the inhibiting cover will have to precede regeneration. The regeneration of the remaining 3.4 million acres could be accomplished with little or no site preparation from the standpoint of existing cover.

Although the regeneration of these lands certainly offers the greatest potential of all the opportunities for increasing the supply of timber in Florida, it would require the greatest expenditure of money and effort. It is estimated that two-thirds of these lands are in the private, nonindustrial ownership class where there is great diversity of interest in the actions and investments that would be required. Where there is interest and willingness on the part of the owner, the best professional advice and

Table VI.—Commercial forest area by major type of action suggested by current spatial occupancy, by forest type, 1970

Type of action suggested to increase prospective yields	Commercial forest area		Current forest type			
			Pine	Oak-pine	Upland hardwood	Bottomland hardwood
	Percent		----- Thousand acres -----			
No treatment needed:						
Sawtimber	12.3	1,996.4	733.4	222.0	148.7	892.3
Poletimber	9.6	1,559.5	772.0	138.4	128.8	520.3
Sapling and seedling	13.4	2,173.8	1,711.4	172.0	106.8	183.6
Total	35.3	5,729.7	3,216.8	532.4	384.3	1,596.2
Stand improvement:						
Sawtimber	7.7	1,248.9	500.4	139.3	88.1	521.1
Poletimber	7.7	1,244.8	800.0	88.5	77.4	278.9
Sapling and seedling	3.8	622.8	431.1	64.3	53.1	74.3
Total	19.2	3,116.5	1,731.5	292.1	218.6	874.3
Regeneration:						
Without site preparation	21.2	3,441.1	1,985.9	362.2	706.5	386.5
With site preparation	24.3	3,944.3	1,272.0	482.4	991.8	1,198.1
Total	45.5	7,385.4	3,257.9	844.6	1,698.3	1,584.6
Total	100.0	16,231.6	8,206.2	1,669.1	2,301.2	4,055.1

silvicultural knowledge available should guide his actions. There might also be a need for incentive programs to reach other private owners, particularly if shortages are anticipated in the supply of timber.

In the meantime, some of the acres in this condition can be expected to regenerate naturally where seed sources are available and the establishment and development of seedlings is not inhibited.

It is estimated that over 2.5 million acres of the forest lands in need of regeneration are either publicly owned or owned by forest industry. Management plans have already been set up for much of this area; therefore, most of these acres will gradually be brought into production. Because of the size of the task and time that will be required, priorities are needed for the better and more accessible sites.

EXPAND THE AREA OF COMMERCIAL FORESTS

Because the area of commercial forest land has been declining in Florida for several decades, one might conclude that there is little chance of reversing this trend and of increasing the supply of timber by expanding the forest base. The Forest Survey findings, however, show that there are 600,000 acres of idle farmland scattered across the State and about 2,500,000 acres of natural rangeland in South and Central Florida. This means that there are over 3 million acres of idle land which could conceivably be added to the forest base. Of course, some of this land will be improved for pasture, used for cropland or citrus production, or developed in urban expansion. On the remaining areas, forestry may very well offer the best opportunity available for putting these idle acres to use.



OFFICE PREPARATION



DATA COLLECTION



DATA PROCESSING



ANALYSIS AND REPORTING

Appendix

SURVEY PROCEDURE

The basic steps of the procedure used in the fourth Forest Survey of Florida were as follows:

1. In 33 of the 67 counties, initial estimates of forest and nonforest areas were based on the classification of 55,457 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 4,713 of these 16-point clusters were ground checked, and linear regressions were fitted to the data to develop the relationships between the photo and ground classifications. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassification.

2. In 4 of the 67 counties, estimates of forest and nonforest areas were determined by direct aerial observation of 18,178 sample points from fixed-wing aircraft along flight lines 2 miles apart. An interval timer was used to determine the sample points.

3. In the remaining 30 counties, all located in South and Central Florida, estimates of forest and nonforest were based entirely on the ground classification of 6,802 sample clusters systematically distributed across all land uses.

4. Estimates of timber volume and forest classifications were based on measurements recorded at 4,704 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots systematically spaced on an acre were measured at each of these sample locations with a basal area factor of 37.5 square feet per acre. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.

5. Equations prepared from detailed measurements collected on trees tallied at 222 sample locations were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same subsample of plots used for the tree-volume study also served as a quality control of field measurements. Felled trees were measured at approximately 100 active cutting operations to provide utilization factors for product and species groups, and to supplement the standing tree-volume study.

6. Estimates of growth, removals, and mortality were determined from the remeasurement of 3,913 permanent sample plots which were established in the third survey. A 1969 survey of timber products output, conducted by the Division of Forestry, Florida Department of Agriculture and Consumer Services, along with the annual pulpwood production study in

the South, provided additional information for breakdowns of removals by product.

7. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.

8. In South and Central Florida, approximately 2,232,100 acres of land classified as nonstocked forest land in the 1959 survey were reclassified as rangeland. In addition, approximately 441,400 acres of marginal forest land classified as commercial forest in the 1959 survey were reclassified as unproductive forest. These steps were taken in an attempt to provide a more realistic measure of the timber resource in these areas.

9. Throughout the State, an attempt was made to improve the breakdowns of land and water area provided by the Bureau of the Census. It is believed that this attempt strengthened the individual county statistics generated by the Forest Survey.

10. All field data were sent to Asheville for editing and were punched in cards and stored on magnetic tape for computer processing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

ACCURACY OF THE SURVEY

Statistical analysis of the data indicates a sampling error of ± 0.51 percent for the estimate of total commercial forest area, 1.76 percent for total cubic volume, 1.76 percent for total cubic-volume growth, and 4.45 percent for total cubic-foot removals. As the totals are broken down by forest type, species, tree diameter, and other subdivisions, the sampling error increases. The order of this increase is suggested in the following tabulation, which shows the sampling error to which the estimates are liable, in terms of one standard error, or two chances out of three.

Sampling error ¹	Commercial forest area	Volume of growing stock		
		Inventory	Net growth	Removals
	<i>Thousand acres</i>	<i>Million cubic feet</i>		
Percent				
1	4,221.8	—	—	—
2	1,055.4	8,432.0	411.8	—
3	469.1	3,747.5	183.0	—
4	263.9	2,108.0	103.0	—
5	168.9	1,349.1	65.9	275.6
10	42.2	337.3	16.5	68.9
15	18.8	149.9	7.3	30.6
20	10.6	84.3	4.1	17.2
25	6.8	54.0	2.6	11.0

¹By random-sampling formula.

DEFINITIONS OF TERMS

Acceptable trees.—Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Available cut.—The volume of timber that would be available for cutting on commercial forest land during a given period under specified assumptions concerning growth, cut, mortality, and forest management practices.

Basal area.—The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.—Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.—Tree species suitable for industrial wood products.

Cropland.—Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.—Growing-stock trees of commercial species having no serious defects in quality that limit present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.—A classification of trees based on diameter outside bark (d.o.b.), measured at breast height (4½ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.00 through 6.99 inches d.b.h., inclusive.

Farm.—Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.—A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.—Lands owned by farm operators.

Forest industry lands.—Lands owned by companies or individuals operating wood-using plants.

Forest land.—Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.—A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.—Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.—Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.—Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.—Forests in which upland oaks or hickory, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.—Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.—Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.—Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.—Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.—Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.—Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.—Soft-textured hardwoods such as boxelder, red and silver maple, hackberry, loblolly-bay, sweetgum, yellow-poplar, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.—Hard-textured hardwoods such as Florida maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, and all commercial oaks.

Idle farmland.—Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.—Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.—All roundwood products except fuelwood.

Ingrowth.—The number or net volume of trees that grow large enough during a specified year to qualify as saplings, poletimber, or sawtimber.

Inhibiting vegetation.—Cover sufficiently dense to prevent the establishment of tree seedlings.

Land area.—The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than $\frac{1}{8}$ of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Log grade.—A classification of logs based on external characteristics as indicators of quality or value.

Logging residues.—The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.—Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands—corporate.—Lands owned by private corporations other than forest industry.

Miscellaneous private lands—individual.—Privately owned lands other than forest industry, farmer-owned, or corporate lands.

Mortality.—Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.—Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.—The increase in volume for a specific year.

Net volume.—Gross volume of wood less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.—(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.—Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.—Land that has never supported forests and land formerly forested where timber production is precluded by development for other uses.

Nonstocked land.—Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.—Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.—Publicly owned lands other than National Forests.

Other removals.—The net volume of growing-stock trees removed from the inventory by cultural operations, such as timber stand improvement, land clearing, and other changes in land use that result in the removal of the trees from the commercial forest.

Overstocked areas.—Areas where growth of trees is significantly reduced by excessive numbers of trees.

Plant byproducts.—Wood products, such as pulp chips, obtained incidental to production of other manufactured products.

Plant residues.—Wood materials from manufacturing plants not utilized for some product.

Poletimber trees.—Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.—Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Quality class.—A classification of sawtimber volumes by log or tree grades.

Rangeland.—Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.—Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.—(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Roundwood products.—Logs, bolts, or other round sections cut from trees for industrial or consumer uses.

Salvable dead trees.—Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.—Live trees 1.0 inch to 5.0 inches in diameter at breast height.

Saw log.—A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.—That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.—The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.—Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.—Net volume of the saw-log portion of live sawtimber in board-foot International $\frac{1}{4}$ -inch rule.

Seedlings.—Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.—A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.—Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.—Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.—Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.—Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.—Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.—Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.—Yellow pine species which include loblolly, long-leaf, slash, pond, shortleaf, sand, and spruce pine.

Other softwoods.—Cypress, eastern redcedar, and white-cedar.

Stand-size class.—A classification of forest land based on the diameter class of growing-stock trees on the area.

Sawtimber stands.—Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stock-

ing in sawtimber and poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.—Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.—Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.—The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See table at end of definitions.)

Fully stocked.—100 percent or more stocking

Medium stocked.—60 to 100 percent stocking

Poorly stocked.—Less than 60 percent stocking

Survivor growth.—The increase in volume of growing-stock trees that survive cutting and mortality for a specified year.

Timber products.—Roundwood products and plant byproducts.

Timber removals.—The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.—Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.—That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.—Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking Standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ¹
Seedlings	600	—	5.0
2	560	—	5.4
4	460	—	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

¹Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots with a basal area factor of 37.5 at each sample location.

Overstocked—Over 130 percent

Fully stocked—100-130 percent

Medium stocked—60-99 percent

Poorly stocked—16.7-59 percent

Nonstocked—Less than 16.7 percent

CONVERSION FACTORS

Cubic feet of wood per average cord
(excluding bark)

D.b.h.	Pine	Other softwoods	Hardwood
6	61.0	68.2	59.9
8	68.1	76.0	68.4
10	73.1	81.4	73.4
12	76.7	85.2	76.4
14	79.4	88.1	78.4
16	81.6	90.5	79.8
18	83.4	92.3	80.8
20	84.6	93.9	81.5
22	86.2	94.8	82.1
24+	87.8	98.3	83.2
Average	71.8	81.0	74.0

Rough cords per M cubic feet (without bark) =

$$a + b \left(\frac{1}{\text{D.b.h.}} \right) + c \left(\frac{1}{\text{D.b.h.}} \right)^2$$

Where	Pine	Other softwoods	Hardwood
a	= 10.01850	9.15960	11.68410
b	= 34.42135	28.75793	3.74431
c	= 22.73994	25.54418	157.39417

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Table 1.—Area by land classes, Florida, 1970

Land class	Area
	<i>Thousand acres</i>
Forest land:	
Commercial	16,231.6
Productive-reserved	94.4
Unproductive	1,606.9
Total	17,932.9
Nonforest land:	
Cropland	3,692.2
Pasture and range	6,499.4
Other ¹	7,054.9
Total	17,246.5
All land ²	35,179.4

¹Includes swampland, industrial and urban areas, other nonforest land, and 548,500 acres classed as water by Forest Survey standards but defined by Bureau of Census as land.

²From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

Table 2.—Area of commercial forest land, by ownership classes, Florida, 1970

Ownership class	Area
	<i>Thousand acres</i>
National Forest	1,035.3
Other Federal:	
Bureau of Land Management	0.2
Indian	8.6
Miscellaneous Federal	609.0
Total other Federal	617.8
State	466.3
County and municipal	26.1
Forest industry ¹	5,216.5
Farmer-owned	2,915.8
Miscellaneous private:	
Individual	4,044.2
Corporate	1,909.6
Total miscellaneous private	5,953.8
All ownerships	16,231.6

¹Not including 457,600 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.—Area of commercial forest land, by stand-size and ownership classes, Florida, 1970

Stand-size class	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
	<i>Thousand acres</i>				
Sawtimber	4,987.8	419.4	406.1	1,538.0	2,624.3
Poletimber	4,150.9	305.4	203.0	1,312.0	2,330.5
Sapling and seedling	4,529.2	244.0	243.5	1,944.3	2,097.4
Nonstocked	2,563.7	66.5	257.6	422.2	1,817.4
All classes	16,231.6	1,035.3	1,110.2	5,216.5	8,869.6

Table 4.—Area of commercial forest land, by stand-volume and ownership classes, Florida, 1970

Stand volume per acre ¹	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
	<i>Thousand acres</i>				
Less than 1,500 bd. ft.	10,135.1	554.7	706.1	3,158.8	5,715.5
1,500 to 5,000 bd. ft.	4,224.8	333.1	286.7	1,374.4	2,230.6
More than 5,000 bd. ft.	1,871.7	147.5	117.4	683.3	923.5
All classes	16,231.6	1,035.3	1,110.2	5,216.5	8,869.6

¹International 1/4-inch rule.

Table 5.—Area of commercial forest land, by stocking classes based on selected stand components, Florida, 1970

Stocking percentage	Stocking classified in terms of:					
	All live trees	Growing-stock trees			Rough and rotten trees	Inhibiting vegetation
		Total	Desirable	Acceptable		
- - - - - <i>Thousand acres</i> - - - - -						
160	27.2	5.6	—	—	—	—
150-159	134.0	21.1	—	—	—	—
140-149	373.9	92.8	5.0	6.2	—	—
130-139	524.0	237.2	9.1	6.4	—	—
120-129	876.8	427.3	55.9	24.7	2.5	—
110-119	1,053.3	642.8	94.9	35.8	34.5	—
100-109	1,458.8	880.3	226.7	50.1	28.3	—
90-99	1,552.2	1,141.5	397.8	87.0	79.3	131.6
80-89	1,783.2	1,406.5	672.7	123.2	104.5	88.6
70-79	1,722.9	1,710.8	908.0	234.3	225.1	109.2
60-69	1,458.1	1,636.9	1,329.1	383.1	283.0	238.1
50-59	1,394.2	1,537.6	1,579.0	668.4	570.4	314.5
40-49	1,036.0	1,395.8	1,964.6	1,112.6	904.9	354.4
30-39	879.5	1,110.0	2,122.2	1,486.1	1,281.7	598.8
20-29	643.5	1,114.3	1,866.6	2,553.9	1,849.3	721.6
10-19	633.2	1,040.4	2,115.8	3,353.0	2,746.8	1,544.6
Less than 10	680.8	1,830.7	2,884.2	6,106.8	8,121.3	12,130.2
Total	16,231.6	16,231.6	16,231.6	16,231.6	16,231.6	16,231.6

Table 6.—Area of commercial forest land, by ownership and stocking classes,¹ with percent occupancy by selected stand components, Florida, 1970

Ownership and stocking class	Area	Stand components					
		Growing-stock trees			Rough and rotten trees	Inhibiting vegetation	Nonstocked
		Total	Desirable	Acceptable			
<i>M acres</i>		<i>Percent of area</i>					
National Forest:							
Fully stocked stands	160.2	89.7	48.6	41.1	8.6	0.3	1.4
Medium stocked stands	411.6	72.4	45.0	27.4	10.5	4.3	12.8
Poorly stocked stands	463.5	34.6	21.8	12.8	11.7	19.0	34.7
All stands	1,035.3	59.5	35.8	23.7	10.7	9.8	20.0
Other public:							
Fully stocked stands	92.4	92.2	57.1	35.1	6.5	0.2	1.1
Medium stocked stands	310.7	75.4	48.7	26.7	11.6	3.7	9.3
Poorly stocked stands	707.1	25.1	14.9	10.2	33.9	10.2	30.8
All stands	1,110.2	46.1	28.7	17.4	24.8	7.4	21.7
Forest industry:							
Fully stocked stands	932.5	91.4	60.1	31.3	7.7	0.1	0.8
Medium stocked stands	2,290.1	73.9	51.6	22.3	11.9	3.5	10.7
Poorly stocked stands	1,993.9	34.7	24.5	10.2	18.0	14.6	32.7
All stands	5,216.5	63.0	43.3	19.7	13.3	6.9	16.8
Farmer & misc. private:							
Fully stocked stands	1,122.0	91.8	56.8	35.0	7.1	0.3	0.8
Medium stocked stands	2,883.3	72.7	46.1	26.6	14.6	3.1	9.6
Poorly stocked stands	4,864.3	25.9	16.6	9.3	21.0	14.5	38.6
All stands	8,869.6	50.9	32.2	18.7	16.9	8.7	23.5
All ownerships:							
Fully stocked stands	2,307.1	91.5	57.3	34.2	7.4	0.3	0.8
Medium stocked stands	5,895.7	73.3	48.1	25.2	13.1	3.4	10.2
Poorly stocked stands	8,028.8	28.2	18.4	9.8	21.3	14.3	36.2
All stands	16,231.6	54.5	35.3	19.2	16.1	8.2	21.2

¹Based on degree of growing-stock stocking.

Table 7.—Area of commercial forest land, by site and ownership classes, Florida, 1970

Site class	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
<i>Thousand acres</i>					
165 cu. ft. or more	3.8	—	—	—	3.8
120 to 165 cu. ft.	143.7	3.3	2.3	33.5	104.6
85 to 120 cu. ft.	2,429.9	131.6	119.4	1,037.4	1,141.5
50 to 85 cu. ft.	9,486.1	550.8	527.1	3,294.1	5,114.1
Less than 50 cu. ft.	4,168.1	349.6	461.4	851.5	2,505.6
All classes	16,231.6	1,035.3	1,110.2	5,216.5	8,869.6

Table 8.—Area of commercial forest land, by forest types and ownership classes, Florida, 1970

Type	All ownerships	Public	Private
<i>Thousand acres</i>			
Softwood types:			
Longleaf pine	1,531.6	399.6	1,132.0
Slash pine	5,424.9	528.8	4,896.1
Loblolly pine	344.4	4.5	339.9
Shortleaf pine	34.5	—	34.5
Redcedar	14.5	—	14.5
Sand pine	505.9	277.7	228.2
Pond pine	343.6	81.8	261.8
Spruce pine	6.8	—	6.8
Total	8,206.2	1,292.4	6,913.8
Hardwood types:			
Oak-pine	1,669.1	303.3	1,365.8
Oak-hickory	962.3	15.8	946.5
Southern scrub oak	1,338.9	220.8	1,118.1
Oak-gum-cypress	3,971.2	313.2	3,658.0
Elm-ash-cottonwood	83.9	—	83.9
Total	8,025.4	853.1	7,172.3
All types	16,231.6	2,145.5	14,086.1

**Table 9.—Area of noncommercial forest land,
by forest types, Florida, 1970**

Type	All areas	Productive- reserved areas	Unpro- ductive areas
- - Thousand acres - -			
Longleaf-slash pine	221.7	18.7	203.0
Loblolly-shortleaf pine	—	—	—
Oak-pine	5.0	1.7	3.3
Oak-hickory	12.4	2.4	10.0
Oak-gum-cypress	1,462.2	71.6	1,390.6
Elm-ash-cottonwood	—	—	—
All types	1,701.3	94.4	1,606.9

Table 10.—Number of growing-stock trees on commercial forest land, by species and diameter classes, Florida, 1970

Species	All classes	Diameter class (inches at breast height)									
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- <i>Thousand trees</i> -----											
Softwood:											
Longleaf pine	154,944	51,207	40,424	33,409	20,508	6,886	1,894	478	116	22	—
Slash pine	453,561	261,982	101,684	47,258	23,504	11,924	4,747	1,629	567	264	2
Loblolly pine	43,229	14,818	9,685	6,991	4,859	3,066	2,057	974	438	338	3
Shortleaf pine	3,642	1,755	782	472	309	163	66	39	47	9	—
Pond pine	25,031	10,798	6,299	3,520	2,370	1,221	470	255	64	32	2
Sand pine	38,675	23,274	9,695	3,589	1,316	565	170	55	—	11	—
Spruce pine	2,105	634	453	202	272	241	153	113	12	25	—
Baldcypress	44,002	15,555	10,786	6,523	4,931	2,980	1,417	1,057	320	396	37
Pondcypress	188,568	80,550	51,524	29,098	15,465	7,369	2,922	972	335	305	28
Atlantic white-cedar	5,925	2,155	1,147	1,182	649	412	181	144	35	20	—
Eastern redcedar	2,588	1,537	452	249	211	79	47	7	—	6	—
Total softwoods	962,270	464,265	232,931	132,493	74,394	34,906	14,124	5,723	1,934	1,428	72
Hardwood:											
Select white oaks ¹	1,881	273	350	330	300	312	152	86	51	27	—
Select red oaks ²	538	193	179	82	35	27	—	9	—	11	2
Other white oaks	14,401	3,852	2,182	1,750	1,256	1,325	1,117	856	658	1,113	292
Other red oaks	75,972	30,827	17,931	10,303	6,119	4,349	2,562	1,655	943	1,132	151
Hickory	9,674	3,306	2,053	1,486	1,059	882	410	183	118	170	7
Hard maple	970	139	241	242	185	100	38	7	14	4	—
Soft maple	28,478	10,448	7,981	4,272	2,487	1,461	915	423	229	249	13
Beech	305	70	—	40	48	41	28	32	6	37	3
Sweetgum	41,939	18,044	9,867	6,174	3,530	2,212	1,005	574	275	248	10
Tupelo and blackgum	109,080	40,125	25,580	16,326	11,354	6,911	4,030	2,224	1,299	1,135	96
Ash	28,225	12,352	6,551	4,167	2,133	1,375	870	420	234	115	8
Cottonwood	64	—	—	21	13	13	—	7	6	4	—
Basswood	1,631	505	449	247	202	114	54	43	11	6	—
Yellow-poplar	2,886	623	840	525	464	139	186	67	27	15	—
Bay and magnolia	56,805	24,850	12,721	8,229	4,987	2,708	1,854	790	362	275	29
Elm	7,472	3,204	1,603	1,100	777	385	195	104	70	27	7
Black cherry	566	287	99	95	19	13	31	22	—	—	—
Sycamore	229	75	37	26	18	46	21	—	6	—	—
Other eastern hardwoods	6,360	3,707	1,124	721	368	248	109	59	17	7	—
Total hardwoods	387,476	152,880	89,788	56,136	35,354	22,661	13,577	7,561	4,326	4,575	618
All species	1,349,746	617,145	322,719	188,629	109,748	57,567	27,701	13,284	6,260	6,003	690

¹Includes white and swamp chestnut oaks.

²Includes cherrybark and Shumard oaks.

Table 11.—Volume of timber on commercial forest land, by class of timber and by softwood and hardwood, Florida, 1970

Class of timber	All species	Soft-wood	Hard-wood
<i>- - Million cubic feet - -</i>			
Sawtimber trees:			
Saw-log portion	6,209.2	4,010.4	2,198.8
Upper-stem portion	721.0	396.7	324.3
Total	6,930.2	4,407.1	2,523.1
Poletimber trees	3,958.2	2,497.1	1,461.1
All growing-stock trees	10,888.4	6,904.2	3,984.2
Rough trees:			
Sawtimber-size trees	549.4	48.9	500.5
Poletimber-size trees	804.0	83.4	720.6
Total	1,353.4	132.3	1,221.1
Rotten trees:			
Sawtimber-size trees	263.7	44.0	219.7
Poletimber-size trees	44.9	8.6	36.3
Total	308.6	52.6	256.0
Salvable dead trees:			
Sawtimber-size trees	8.1	6.2	1.9
Poletimber-size trees	7.1	4.5	2.6
Total	15.2	10.7	4.5
Total, all timber	12,565.6	7,099.8	5,465.8

Table 12.—Volume of growing stock and sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Florida, 1970

Ownership class	Growing stock			Sawtimber		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
<i>- Million cubic feet -</i>				<i>- Million board feet¹ -</i>		
National Forest	925.9	754.7	171.2	2,579.6	2,154.6	425.0
Other public	638.5	510.1	128.4	2,006.2	1,694.4	311.8
Forest industry	3,522.3	2,219.7	1,302.6	9,729.7	6,280.3	3,449.4
Farmer and misc. private	5,801.7	3,419.7	2,382.0	16,149.0	9,836.8	6,312.2
All ownerships	10,888.4	6,904.2	3,984.2	30,464.5	19,966.1	10,498.4

¹International 1/4-inch rule.

Table 13.—Volume of growing stock on commercial forest land, by species and diameter classes, Florida, 1970

Species	All classes	Diameter class (inches at breast height)									
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- Million cubic feet -----											
Softwood:											
Longleaf pine	1,395.9	134.9	262.9	395.1	357.6	162.5	57.2	19.0	5.3	1.4	—
Slash pine	2,643.3	577.4	588.8	525.1	401.7	290.1	149.0	67.8	27.9	15.3	0.2
Loblolly pine	483.1	31.8	56.2	75.2	85.2	74.6	68.8	43.5	25.0	22.7	0.1
Shortleaf pine	27.5	3.7	4.6	4.5	4.4	3.5	2.2	1.6	2.6	0.4	—
Pond pine	177.2	19.6	30.5	33.6	35.0	28.1	14.4	10.1	3.7	1.9	0.3
Sand pine	225.3	74.1	65.4	42.1	22.3	13.5	5.0	2.4	—	0.5	—
Spruce pine	32.9	1.6	2.8	2.4	5.3	6.9	6.0	5.6	0.7	1.6	—
Baldcypress	520.9	51.5	74.1	74.5	88.8	78.6	50.9	46.9	18.7	29.7	7.2
Pondcypress	1,324.5	212.7	286.7	283.8	235.1	157.5	78.6	34.6	14.8	17.6	3.1
Atlantic white-cedar	58.5	5.4	7.0	13.0	10.5	9.5	5.3	5.4	1.5	0.9	—
Eastern redcedar	15.1	3.2	2.2	2.3	3.0	1.8	1.8	0.3	—	0.5	—
Total softwoods	6,904.2	1,115.9	1,381.2	1,451.6	1,248.9	826.6	439.2	237.2	100.2	92.5	10.9
Hardwood:											
Select white oaks ¹	32.0	0.7	2.0	3.1	4.9	7.5	4.8	3.9	2.7	2.4	—
Select red oaks ²	5.1	0.7	1.3	0.8	0.5	0.6	—	0.2	—	0.8	0.2
Other white oaks	302.4	8.7	10.7	15.4	17.0	26.9	29.8	30.2	29.8	83.4	50.5
Other red oaks	773.2	74.9	97.7	99.4	92.1	96.4	75.3	69.1	48.3	92.4	27.6
Hickory	112.9	7.6	10.1	14.2	16.8	20.8	13.5	8.4	6.4	13.9	1.2
Hard maple	12.2	0.4	1.1	2.4	2.9	2.7	1.1	0.4	0.8	0.4	—
Soft maple	275.8	30.7	47.3	45.2	40.0	34.9	28.2	17.6	11.6	18.5	1.8
Beech	10.4	0.2	—	0.4	0.8	0.9	1.0	1.4	0.2	5.0	0.5
Sweetgum	382.7	39.0	55.7	66.5	61.7	58.7	34.7	26.5	16.2	21.3	2.4
Tupelo and blackgum	1,149.6	107.7	145.6	171.3	188.8	166.1	124.0	91.1	65.1	78.4	11.5
Ash	265.4	30.0	37.0	43.1	40.2	38.2	30.3	20.8	13.6	10.9	1.3
Cottonwood	1.6	—	—	0.2	0.2	0.3	—	0.3	0.2	0.4	—
Basswood	18.5	1.3	3.0	2.6	3.6	2.9	1.9	2.0	0.7	0.5	—
Yellow-poplar	33.9	1.8	5.0	5.0	7.7	3.1	5.3	3.1	1.5	1.4	—
Bay and magnolia	489.5	63.1	73.1	83.5	78.8	61.9	54.4	32.1	17.6	20.6	4.4
Elm	69.7	7.6	9.8	10.8	12.9	9.5	6.2	5.0	4.0	2.5	1.4
Black cherry	4.2	0.5	0.4	0.8	0.3	0.3	1.0	0.9	—	—	—
Sycamore	3.6	0.3	0.2	0.4	0.3	1.4	0.6	—	0.4	—	—
Other eastern hardwoods	41.5	8.4	5.4	7.0	6.1	5.7	4.0	2.8	1.3	0.8	—
Total hardwoods	3,984.2	383.6	505.4	572.1	575.6	538.8	416.1	315.8	220.4	353.6	102.8
All species	10,888.4	1,499.5	1,886.6	2,023.7	1,824.5	1,365.4	855.3	553.0	320.6	446.1	113.7

¹Includes white and swamp chestnut oaks.

²Includes cherrybark and Shumard oaks.

Table 14.—Volume of sawtimber on commercial forest land, by species and diameter classes, Florida, 1970

Species	All classes	Diameter classes (inches at breast height)							
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- Million board feet -----									
Softwood:									
Longleaf pine	4,588.5	1,589.8	1,686.8	843.8	326.4	106.8	27.4	7.5	—
Slash pine	6,656.9	1,932.5	1,796.1	1,471.9	831.0	383.1	144.2	96.5	1.6
Loblolly pine	1,895.3	260.3	369.4	366.6	380.9	241.5	141.6	133.9	1.1
Shortleaf pine	87.7	14.6	18.1	17.1	12.0	8.1	15.1	2.7	—
Pond pine	555.2	111.1	143.9	136.4	79.8	54.4	18.0	10.1	1.5
Sand pine	360.7	162.0	94.6	62.0	24.8	14.1	—	3.2	—
Spruce pine	139.4	8.7	21.4	35.2	32.2	28.5	4.2	9.2	—
Baldcypress	1,903.9	265.4	401.8	398.3	278.4	257.6	102.3	159.3	40.8
Pondcypress	3,550.3	1,056.1	1,008.9	739.2	398.9	176.4	71.4	84.8	14.6
Atlantic white-cedar	187.5	44.5	39.6	41.1	24.2	24.5	7.6	6.0	—
Eastern redcedar	40.7	7.5	12.7	7.5	8.8	1.6	—	2.6	—
Total softwoods	19,966.1	5,452.5	5,593.3	4,119.1	2,397.4	1,296.6	531.8	515.8	59.6
Hardwood:									
Select white oaks ¹	116.6	—	17.6	31.2	23.8	19.9	12.0	12.1	—
Select red oaks ²	10.7	—	1.8	2.4	—	1.5	—	3.8	1.2
Other white oaks	1,117.5	—	51.9	95.3	118.0	126.9	130.0	362.8	232.6
Other red oaks	2,185.0	—	340.7	392.5	331.3	331.2	224.5	434.6	130.2
Hickory	351.1	—	59.4	82.9	63.7	40.8	30.6	65.9	7.8
Hard maple	34.8	—	11.4	11.7	4.9	2.0	3.4	1.4	—
Soft maple	685.4	—	152.9	147.5	130.8	89.3	57.4	96.6	10.9
Beech	39.2	—	2.4	3.1	3.5	6.9	0.9	20.9	1.5
Sweetgum	972.3	—	218.7	252.7	169.2	135.7	78.6	105.4	12.0
Tupelo and blackgum	2,869.9	—	588.2	637.2	517.6	421.8	297.8	352.1	55.2
Ash	647.4	—	138.5	156.7	137.9	97.1	67.5	44.2	5.5
Cottonwood	6.4	—	0.5	1.8	—	1.8	0.6	1.7	—
Basswood	50.2	—	13.5	12.0	8.6	9.8	3.8	2.5	—
Yellow-poplar	99.5	—	27.9	12.8	27.4	16.3	8.3	6.8	—
Bay and magnolia	1,049.1	—	259.4	229.8	228.2	149.2	76.3	87.7	18.5
Elm	161.6	—	44.2	35.6	25.0	21.6	18.2	11.2	5.8
Black cherry	11.0	—	0.9	0.7	4.0	5.4	—	—	—
Sycamore	11.6	—	0.6	5.7	3.6	—	1.7	—	—
Other eastern hardwoods	79.1	—	21.4	22.1	15.9	11.9	5.4	2.4	—
Total hardwoods	10,498.4	—	1,951.9	2,133.7	1,813.4	1,489.1	1,017.0	1,612.1	481.2
All species	30,464.5	5,452.5	7,545.2	6,252.8	4,210.8	2,785.7	1,548.8	2,127.9	540.8

¹Includes white and swamp chestnut oaks.²Includes cherrybark and Shumard oaks.

Table 15.—Volume of sawtimber on commercial forest land, by species and quality classes, Florida, 1970

Species	All grades	Log or tree grade			
		1	2	3	4
- - - - - Million board feet - - - - -					
Softwood:					
Yellow pines ¹	14,283.7	4,774.2	2,447.0	7,062.5	(²)
Cypress ³	5,454.2	1,175.1	2,425.2	1,851.6	2.3
Other eastern softwoods ³	228.2	15.6	67.7	144.9	—
Total	19,966.1	5,964.9	4,939.9	9,059.0	2.3
Hardwood: ⁴					
Select white and red oaks	127.3	35.3	39.4	50.8	1.8
Other white and red oaks	3,302.5	922.7	920.0	1,379.7	80.1
Hickory	351.1	84.2	109.7	148.0	9.2
Hard maple	34.8	2.6	5.3	26.1	0.8
Sweetgum	972.3	246.2	303.6	409.1	13.4
Ash, walnut, and black cherry	658.4	199.4	179.5	266.9	12.6
Yellow-poplar	99.5	25.9	32.0	37.9	3.7
Other hardwoods	4,952.5	1,275.7	1,690.6	1,952.9	33.3
Total	10,498.4	2,792.0	3,280.1	4,271.4	154.9
All species	30,464.5	8,756.9	8,220.0	13,330.4	157.2

¹Based on **Southern Pine Tree Grades for Yard and Structural Lumber**, Research Paper SE-40, published by the Southeastern Forest Experiment Station in 1968.

²Not applicable.

³Based on **Trial Log Grades for Eastern White Pine** prepared by the Northeastern Forest Experiment Station in 1960.

⁴Graded according to **Hardwood Log Grades for Standard Lumber** published by the U. S. Forest Products Laboratory in 1953. Specifications for the grade 4 tie and timber logs are based chiefly on knot size and log soundness.

Table 16.—Net annual growth and removals of growing stock on commercial forest land, by species, Florida, 1969

Species	Net annual growth	Annual timber removals
<i>Million cubic feet</i>		
Softwood:		
Yellow pines	370.7	259.7
Cypress	42.1	18.2
Other eastern softwoods	2.7	0.4
Total softwoods	415.5	278.3
Hardwood:		
Select white and red oaks	1.3	1.0
Other white and red oaks	37.9	25.0
Hickory	3.3	5.7
Hard maple	0.1	0.4
Sweetgum	12.6	8.9
Ash, walnut, and black cherry	7.0	2.9
Yellow-poplar	1.3	1.3
Tupelo and blackgum	24.6	13.2
Bay and magnolia	13.9	7.1
Other eastern hardwoods	14.3	4.1
Total hardwoods	116.3	69.6
All species	531.8	347.9

Table 17.—Net annual growth and removals of growing stock on commercial forest land, by ownership classes and by softwood and hardwood, Florida, 1969

Ownership class	Net annual growth			Annual timber removals		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
<i>----- Million cubic feet -----</i>						
National Forest	45.3	41.2	4.1	9.5	9.4	0.1
Other public	29.3	25.5	3.8	16.6	13.5	3.1
Forest industry	179.2	145.7	33.5	135.1	114.0	21.1
Farmer and misc. private	278.0	203.1	74.9	186.7	141.4	45.3
All ownerships	531.8	415.5	116.3	347.9	278.3	69.6

Table 18.—Net annual growth and removals of sawtimber on commercial forest land, by species, Florida, 1969

Species	Net annual growth	Annual timber removals
<i>Million board feet</i>		
Softwood:		
Yellow pines	1,155.6	863.3
Cypress	156.8	70.4
Other eastern softwoods	10.1	0.3
Total softwoods	1,322.5	934.0
Hardwood:		
Select white and red oaks	3.6	5.0
Other white and red oaks	117.7	79.3
Hickory	13.3	21.6
Hard maple	1.2	1.5
Sweetgum	41.2	32.9
Ash, walnut, and black cherry	22.7	8.8
Yellow-poplar	5.1	4.0
Tupelo and blackgum	74.7	39.3
Bay and magnolia	36.1	17.0
Other eastern hardwoods	49.4	10.3
Total hardwoods	365.0	219.7
All species	1,687.5	1,153.7

Table 21.—Mortality of growing stock and sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Florida, 1969

Ownership class	Growing stock			Sawtimber		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
<i>Million cubic feet</i>			<i>Million board feet</i>			
National Forest	3.9	2.3	1.6	12.6	6.9	5.7
Other public	3.2	1.6	1.6	8.1	3.7	4.4
Forest industry	16.6	6.8	9.8	47.0	17.3	29.7
Farmer and misc. private	47.1	19.0	28.1	133.8	56.7	77.1
All ownerships	70.8	29.7	41.1	201.5	84.6	116.9

Table 22.—Mortality of growing stock and sawtimber on commercial forest land, by causes and by softwood and hardwood, Florida, 1969

Cause of death	Growing stock			Sawtimber		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
<i>- - Million cubic feet - -</i>			<i>- - Million board feet - -</i>			
Fire	11.5	7.8	3.7	26.0	18.2	7.8
Insects	4.9	4.8	0.1	18.9	18.3	0.6
Diseases	2.9	0.8	2.1	9.7	1.8	7.9
Other	19.5	10.1	9.4	53.1	26.9	26.2
Unknown	32.0	6.2	25.8	93.8	19.4	74.4
All causes	70.8	29.7	41.1	201.5	84.6	116.9

Table 19.—Net annual growth and removals of sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Florida, 1969

Ownership class	Net annual growth			Annual timber removals		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
<i>Million board feet</i>						
National Forest	151.6	139.0	12.6	21.6	21.2	0.4
Other public	116.6	104.6	12.0	58.7	51.8	6.9
Forest industry	530.4	431.7	98.7	448.1	375.2	72.9
Farmer and misc. private	888.9	647.2	241.7	625.3	485.8	139.5
All ownerships	1,687.5	1,322.5	365.0	1,153.7	934.0	219.7

Table 20.—Mortality of growing stock and sawtimber on commercial forest land, by species, Florida, 1969

Species	Growing stock	Sawtimber
	<i>Million cu. ft.</i>	<i>Million bd. ft.</i>
Softwood:		
Yellow pines	23.6	65.1
Cypress	5.9	18.6
Other eastern softwoods	0.2	0.9
Total softwoods	29.7	84.6
Hardwood:		
Select white and red oaks	0.3	1.5
Other white and red oaks	16.1	53.9
Hickory	0.3	0.9
Hard maple	—	—
Sweetgum	2.8	7.6
Ash, walnut, and black cherry	1.6	3.4
Yellow-poplar	0.7	1.7
Tupelo and blackgum	7.0	21.4
Bay and magnolia	5.7	10.1
Other eastern hardwoods	6.6	16.4
Total hardwoods	41.1	116.9
All species	70.8	201.5

Table 23.—Output of timber products, by product, by source of material, and by softwood and hardwood, Florida, 1969

Product and species group	Standard units	Total output		Roundwood products		Plant byproducts	
		Number of units	Thousand cu. ft.	Number of units	Thousand cu. ft.	Number of units	Thousand cu. ft.
Saw logs:							
Softwood	M bd. ft. ¹	253,095	43,791	253,095	43,791	—	—
Hardwood	M bd. ft. ¹	59,527	9,363	59,527	9,363	—	—
Total	M bd. ft. ¹	312,622	53,154	312,622	53,154	—	—
Veneer logs and bolts:							
Softwood	M bd. ft. ¹	25,756	4,815	25,756	4,815	—	—
Hardwood	M bd. ft. ¹	62,353	10,842	62,353	10,842	—	—
Total	M bd. ft. ¹	88,109	15,657	88,109	15,657	—	—
Pulpwood:							
Softwood	Std. cords ²	3,082,534	224,594	2,752,235	200,528	330,299	24,066
Hardwood	Std. cords ²	363,507	24,682	268,440	18,227	95,067	6,455
Total	Std. cords ²	3,446,041	249,276	3,020,675	218,755	425,366	30,521
Piling:							
Softwood	M linear ft.	19	12	19	12	—	—
Hardwood	M linear ft.	—	—	—	—	—	—
Total	M linear ft.	19	12	19	12	—	—
Poles:							
Softwood	M pieces	306	4,524	306	4,524	—	—
Hardwood	M pieces	—	—	—	—	—	—
Total	M pieces	306	4,524	306	4,524	—	—
Posts (round and split):							
Softwood	M pieces	871	479	791	435	80	44
Hardwood	M pieces	—	—	—	—	—	—
Total	M pieces	871	479	791	435	80	44
Other:³							
Softwood	M cu. ft.	814	814	814	814	—	—
Hardwood	M cu. ft.	1,012	1,012	829	829	183	183
Total	M cu. ft.	1,826	1,826	1,643	1,643	183	183
Total industrial products:							
Softwood		—	279,029	—	254,919	—	24,110
Hardwood		—	45,899	—	39,261	—	6,638
Total		—	324,928	—	294,180	—	30,748
Fuelwood:⁴							
Softwood	Std. cords	4,455	325	2,274	166	2,181	159
Hardwood	Std. cords	15,826	1,152	14,128	1,037	1,698	115
Total	Std. cords	20,281	1,477	16,402	1,203	3,879	274
All products:							
Softwood		—	279,354	—	255,085	—	24,269
Hardwood		—	47,051	—	40,298	—	6,753
Total		—	326,405	—	295,383	—	31,022

¹International 1/4-inch rule.

²Rough-wood basis (includes chips converted to equivalent standard cords).

³Includes hewn ties, excelsior bolts, shingle bolts, turnery bolts, and chemical wood.

⁴Excludes approximately 6,433 thousand cubic feet of plant byproducts used for industrial fuel.

Table 24.—Output of roundwood products, by product, by source, and by softwood and hardwood, Florida, 1969

Product and species group	All sources	Growing-stock trees¹			Rough and rotten trees¹	Salvable dead trees¹	Other sources²
		Total	Sawtimber	Poletimber			
----- Thousand cubic feet -----							
Saw logs:							
Softwood	43,791	42,964	42,947	17	91	—	736
Hardwood	9,363	8,954	8,569	385	405	—	4
Total	53,154	51,918	51,516	402	496	—	740
Veneer logs and bolts:							
Softwood	4,815	4,586	4,586	—	—	—	229
Hardwood	10,842	10,006	9,575	431	805	—	31
Total	15,657	14,592	14,161	431	805	—	260
Pulpwood:							
Softwood	200,528	182,988	119,112	63,876	4,559	—	12,981
Hardwood	18,227	13,214	4,757	8,457	4,705	—	308
Total	218,755	196,202	123,869	72,333	9,264	—	13,289
Piling:							
Softwood	12	12	12	—	—	—	—
Hardwood	—	—	—	—	—	—	—
Total	12	12	12	—	—	—	—
Poles:							
Softwood	4,524	4,431	4,431	—	—	—	93
Hardwood	—	—	—	—	—	—	—
Total	4,524	4,431	4,431	—	—	—	93
Posts (round and split):							
Softwood	435	371	28	343	—	—	64
Hardwood	—	—	—	—	—	—	—
Total	435	371	28	343	—	—	64
Other:							
Softwood	814	788	709	79	—	—	26
Hardwood	829	352	10	342	322	—	155
Total	1,643	1,140	719	421	322	—	181
Total industrial products:							
Softwood	254,919	236,140	171,825	64,315	4,650	—	14,129
Hardwood	39,261	32,526	22,911	9,615	6,237	—	498
Total	294,180	268,666	194,736	73,930	10,887	—	14,627
Fuelwood:							
Softwood	166	92	—	92	—	50	24
Hardwood	1,037	196	—	196	746	—	95
Total	1,203	288	—	288	746	50	119
All products:							
Softwood	255,085	236,232	171,825	64,407	4,650	50	14,153
Hardwood	40,298	32,722	22,911	9,811	6,983	—	593
Total	295,383	268,954	194,736	74,218	11,633	50	14,746

¹On commercial forest land.

²Includes trees less than 5.0 inches in diameter, tree tops and limbs from commercial forest areas, or material from noncommercial forest land or nonforest land such as fence rows or suburban areas.

Table 25.—Annual timber removals from growing stock on commercial forest land, by items and by softwood and hardwood, Florida, 1969

Item	All species	Soft-wood	Hard-wood
<i>- Thousand cubic feet -</i>			
Roundwood products:			
Saw logs	51,918	42,964	8,954
Veneer logs and bolts	14,592	4,586	10,006
Pulpwood	196,202	182,988	13,214
Piling	12	12	—
Poles	4,431	4,431	—
Posts	371	371	—
Other	1,140	788	352
Fuelwood	288	92	196
All products	268,954	236,232	32,722
Logging residues	25,090	14,207	10,883
Other removals	53,878	27,793	26,085
Total removals	347,922	278,232	69,690

Table 26.—Annual timber removals from live sawtimber on commercial forest land, by items and by softwood and hardwood, Florida, 1969

Item	All species	Soft-wood	Hard-wood
<i>- Thousand board feet -</i>			
Roundwood products:			
Saw logs	303,531	249,092	54,439
Veneer logs and bolts	79,832	24,498	55,334
Pulpwood	536,323	512,182	24,141
Piling	69	69	—
Poles	25,345	25,345	—
Posts	91	91	—
Other	4,206	4,143	63
Fuelwood	—	—	—
All products	949,397	815,420	133,977
Logging residues	57,139	33,036	24,103
Other removals	147,174	85,555	61,619
Total removals	1,153,710	934,011	219,699

Table 27.—Volume of unused residues at primary manufacturing plants, by industry and type of residue, and by softwood and hardwood, Florida, 1969

Species group and type of residues	All industries	Lumber	Veneer and plywood	Other
<i>- - - Thousand cubic feet - - -</i>				
Softwood:				
Coarse ¹	2,570	1,710	537	323
Fine ²	4,299	4,168	27	104
Total	6,869	5,878	564	427
Hardwood:				
Coarse ¹	1,605	508	975	122
Fine ²	2,295	1,935	131	229
Total	3,900	2,443	1,106	351
All species:				
Coarse ¹	4,175	2,218	1,512	445
Fine ²	6,594	6,103	158	333
Total	10,769	8,321	1,670	778

¹Material, such as slabs, edgings, and veneer cores.

²Material, such as sawdust and shavings.

Table 28.—Projection of net annual growth, available cut, and inventory of sawtimber and growing stock on commercial forest land, by softwood and hardwood, Florida, 1969 to 1999¹

Species group	1969 (Inventory year)	Projections		
		1979 (Inventory year plus 10 years)	1989 (Inventory year plus 20 years)	1999 (Inventory year plus 30 years)
GROWING STOCK (In thousand cubic feet)				
Softwood:				
Cut	278,300	392,200	475,900	537,000
Growth	415,500	480,900	520,200	536,700
Inventory ²	6,904,200	7,991,100	8,633,900	8,831,200
Hardwood:				
Cut	69,600	98,500	119,600	136,300
Growth	116,300	127,000	133,300	135,400
Inventory ²	3,984,200	4,337,200	4,540,200	4,596,700
Total:				
Cut	347,900	490,700	595,500	673,300
Growth	531,800	607,900	653,500	672,100
Inventory ²	10,888,400	12,328,300	13,174,100	13,427,900
SAWTIMBER (In thousand board feet)				
Softwood:				
Cut	934,000	1,192,000	1,443,000	1,616,000
Growth	1,322,500	1,446,000	1,557,000	1,590,000
Inventory ²	19,966,100	23,215,000	24,977,000	25,352,000
Hardwood:				
Cut	219,700	194,000	243,000	282,000
Growth	365,000	312,000	308,000	295,000
Inventory ²	10,498,400	11,921,000	12,814,000	13,173,000
Total:				
Cut	1,153,700	1,386,000	1,686,000	1,898,000
Growth	1,687,500	1,758,000	1,865,000	1,885,000
Inventory ²	30,464,500	35,136,000	37,791,000	38,525,000

¹Based on the assumption that cut starting at the 1969 level will be in balance with the growth by the year 2000, and that forestry progress will continue at the rate indicated by recent trends.

²Inventory as of January 1 of the following year.

Table 29.—Basal area per acre of growing stock and rough and rotten trees 5.0 inches d.b.h. and larger, by forest type and Survey Unit, Florida, 1970

Forest type	State	North-east	North-west	Central	South
- - - - Square feet - - - -					
Longleaf-slash pine:					
Growing stock	28.3	31.9	28.0	21.9	18.7
Rough and rotten trees	1.3	1.3	1.1	1.9	1.6
All trees	29.6	33.2	29.1	23.8	20.3
Loblolly-shortleaf pine:					
Growing stock	27.3	27.7	30.2	22.3	9.4
Rough and rotten trees	2.8	2.3	3.6	2.6	—
All trees	30.1	30.0	33.8	24.9	9.4
Oak-pine:					
Growing stock	31.4	38.1	29.5	22.4	18.8
Rough and rotten trees	7.5	7.6	7.0	9.4	5.2
All trees	38.9	45.7	36.5	31.8	24.0
Oak-hickory:					
Growing stock	17.3	20.3	18.6	10.7	—
Rough and rotten trees	12.1	16.2	7.9	13.6	—
All trees	29.4	36.5	26.5	24.3	—
Oak-gum-cypress:					
Growing stock	59.2	57.7	62.6	61.6	44.2
Rough and rotten trees	18.9	16.4	25.3	17.0	14.9
All trees	78.1	74.1	87.9	78.6	59.1
Elm-ash-cottonwood:					
Growing stock	64.6	77.6	72.9	50.5	—
Rough and rotten trees	19.1	21.3	16.1	22.2	—
All trees	83.7	98.9	89.0	72.7	—
All types:					
Growing stock	34.8	36.3	33.5	35.8	28.8
Rough and rotten trees	8.1	7.3	7.8	10.6	7.1
All trees	42.9	43.6	41.3	46.4	35.9

Table 30.—Number of growing stock and rough and rotten trees 1.0-4.9 inches d.b.h. per acre, by forest type and Survey Unit, Florida, 1970

Forest type	State	North-east	North-west	Central	South
- - - - Number of trees - - - -					
Longleaf-slash pine:					
Growing stock	223	266	228	117	129
Rough and rotten trees	55	57	71	25	16
All trees	278	323	299	142	145
Loblolly-shortleaf pine:					
Growing stock	196	231	224	84	50
Rough and rotten trees	102	90	159	36	—
All trees	298	321	383	120	50
Oak-pine:					
Growing stock	181	240	161	94	262
Rough and rotten trees	239	255	261	142	50
All trees	420	495	422	236	312
Oak-hickory:					
Growing stock	75	73	107	24	—
Rough and rotten trees	264	233	354	157	—
All trees	339	306	461	181	—
Oak-gum-cypress:					
Growing stock	241	269	201	251	214
Rough and rotten trees	280	317	338	216	179
All trees	521	586	539	467	393
Elm-ash-cottonwood:					
Growing stock	139	133	164	109	—
Rough and rotten trees	375	367	357	400	—
All trees	514	500	521	509	—
All types:					
Growing stock	199	235	193	149	166
Rough and rotten trees	166	159	201	135	84
All trees	365	394	394	284	250

Table 31.—Area of commercial forest land, by stand volume (board feet) and ownership classes, by physiographic classes, Florida, 1970

Ownership class and stand volume per acre ¹ (Bd. ft.)	All classes	Physiographic class								
		Deep swamps	Broad stream margins	Narrow stream margins	Mountain tops and slopes	Flatwoods and dry pocosins	Bays and wet pocosins	Rolling uplands	Sandhills	Other misc. classes
<i>Thousand acres</i>										
National Forest:										
Less than 1,500	554.7	—	—	9.0	—	200.7	86.6	12.1	233.8	12.5
1,500 to 5,000	333.1	12.7	2.5	30.8	—	171.2	44.0	6.3	47.4	18.2
More than 5,000	147.5	5.9	14.7	5.7	—	61.1	34.9	6.3	9.9	9.0
All classes	1,035.3	18.6	17.2	45.5	—	433.0	165.5	24.7	291.1	39.7
Other public:										
Less than 1,500	706.1	1.4	0.3	16.0	—	193.7	40.1	57.1	375.4	22.1
1,500 to 5,000	286.7	4.4	3.4	33.9	—	74.2	9.5	63.4	88.0	9.9
More than 5,000	117.4	5.4	10.8	40.5	—	23.8	11.1	5.5	—	20.3
All classes	1,110.2	11.2	14.5	90.4	—	291.7	60.7	126.0	463.4	52.3
Forest industry:										
Less than 1,500	3,158.8	21.9	9.0	112.4	—	1,774.5	432.4	369.1	261.4	178.1
1,500 to 5,000	1,374.4	85.0	43.3	208.8	—	525.7	107.7	107.3	30.5	266.1
More than 5,000	683.3	159.5	52.8	41.9	—	189.9	57.6	34.4	—	147.2
All classes	5,216.5	266.4	105.1	363.1	—	2,490.1	597.7	510.8	291.9	591.4
Farmer and misc. private:										
Less than 1,500	5,715.5	78.4	25.4	248.6	—	2,545.7	304.2	842.8	1,329.6	340.8
1,500 to 5,000	2,230.6	66.1	92.8	372.3	—	740.1	123.7	400.5	103.3	331.8
More than 5,000	923.5	143.0	69.9	179.4	—	190.6	33.8	107.6	5.7	193.5
All classes	8,869.6	287.5	188.1	800.3	—	3,476.4	461.7	1,350.9	1,438.6	866.1
All ownerships:										
Less than 1,500	10,135.1	101.7	34.7	386.0	—	4,714.6	863.3	1,281.1	2,200.2	553.5
1,500 to 5,000	4,224.8	168.2	142.0	645.8	—	1,511.2	284.9	577.5	269.2	626.0
More than 5,000	1,871.7	313.8	148.2	267.5	—	465.4	137.4	153.8	15.6	370.0
All classes	16,231.6	583.7	324.9	1,299.3	—	6,691.2	1,285.6	2,012.4	2,485.0	1 549.5

¹Sawtimber volume, International 1/4-inch rule.

Table 32.—Area of commercial forest land, by stand volume (cubic feet) and ownership classes, by physiographic classes, Florida, 1970

Ownership class and stand volume per acre ¹ (Cu. ft.)	All classes	Physiographic class								
		Deep swamps	Broad stream margins	Narrow stream margins	Mountain tops and slopes	Flatwoods and dry pocosins	Bays and wet pocosins	Rolling uplands	Sandhills	Other misc. classes
<i>Thousand acres</i>										
National Forest:										
Less than 500	444.4	—	—	9.0	—	153.3	73.5	12.1	187.0	9.5
500 to 1,000	291.0	3.2	2.5	11.9	—	153.9	41.2	3.0	62.8	12.5
More than 1,000	299.9	15.4	14.7	24.6	—	125.8	50.8	9.6	41.3	17.7
All classes	1,035.3	18.6	17.2	45.5	—	433.0	165.5	24.7	291.1	39.7
Other public:										
Less than 500	715.8	1.4	0.3	9.8	—	199.7	36.5	59.6	389.1	19.4
500 to 1,000	184.1	—	3.4	9.0	—	42.1	13.1	45.8	65.8	4.9
More than 1,000	210.3	9.8	10.8	71.6	—	49.9	11.1	20.6	8.5	28.0
All classes	1,110.2	11.2	14.5	90.4	—	291.7	60.7	126.0	463.4	52.3
Forest industry:										
Less than 500	2,773.0	8.8	—	71.0	—	1,539.0	404.1	351.7	271.7	126.7
500 to 1,000	994.1	29.4	23.7	100.8	—	490.1	106.3	93.3	13.4	137.1
More than 1,000	1,449.4	228.2	81.4	191.3	—	461.0	87.3	65.8	6.8	327.6
All classes	5,216.5	266.4	105.1	363.1	—	2,490.1	597.7	510.8	291.9	591.4
Farmer and misc. private:										
Less than 500	5,051.7	46.2	29.9	164.8	—	2,327.4	245.5	711.7	1,304.1	222.1
500 to 1,000	1,769.5	43.4	28.2	231.9	—	653.6	122.9	376.4	103.2	209.9
More than 1,000	2,048.4	197.9	130.0	403.6	—	495.4	93.3	262.8	31.3	434.1
All classes	8,869.6	287.5	188.1	800.3	—	3,476.4	461.7	1,350.9	1,438.6	866.1
All ownerships:										
Less than 500	8,984.9	56.4	30.2	254.6	—	4,219.4	759.6	1,135.1	2,151.9	377.7
500 to 1,000	3,238.7	76.0	57.8	353.6	—	1,339.7	283.5	518.5	245.2	364.4
More than 1,000	4,008.0	451.3	236.9	691.1	—	1,132.1	242.5	358.8	87.9	807.4
All classes	16,231.6	583.7	324.9	1,299.3	—	6,691.2	1,285.6	2,012.4	2,485.0	1,549.5

¹Growing-stock volume.

Table 33.—Average net volume and growth per acre on commercial forest land, by physiographic class, tree class, and species group, Florida, 1970

Physiographic class and tree class	Net volume per acre						Net growth per acre					
	Softwood		Hardwood		Total		Softwood		Hardwood		Total	
	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>
Deep swamps:												
Growing stock	689.0	2,541	1,395.8	3,861	2,084.8	6,402	17.9	81	34.1	119	52.0	200
Rough and rotten trees	34.8	—	390.5	—	425.3	—	0.3	—	6.0	—	6.3	—
Total	723.8	2,541	1,786.3	3,861	2,510.1	6,402	18.2	81	40.1	119	58.3	200
Broad stream margins:												
Growing stock	286.3	1,227	1,382.4	4,275	1,668.7	5,502	9.7	49	33.9	131	43.6	180
Rough and rotten trees	11.4	—	405.6	—	417.0	—	0.1	—	6.2	—	6.3	—
Total	297.7	1,227	1,788.0	4,275	2,085.7	5,502	9.8	49	40.1	131	49.9	180
Narrow stream margins:												
Growing stock	443.7	1,570	707.3	1,735	1,151.0	3,305	21.6	93	20.1	66	41.7	159
Rough and rotten trees	7.4	—	214.1	—	221.5	—	0.1	—	3.7	—	3.8	—
Total	451.1	1,570	921.4	1,735	1,372.5	3,305	21.7	93	23.8	66	45.5	159
Mountain tops and slopes:												
Growing stock	—	—	—	—	—	—	—	—	—	—	—	—
Rough and rotten trees	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—
Flatwoods and dry pocosins:												
Growing stock	440.7	1,165	68.2	183	508.9	1,348	33.5	99	2.3	7	35.8	106
Rough and rotten trees	3.9	—	36.6	—	40.5	—	0.3	—	0.6	—	0.9	—
Total	444.6	1,165	104.8	183	549.4	1,348	33.8	99	2.9	7	36.7	106
Bays and wet pocosins:												
Growing stock	381.6	1,218	230.4	487	612.0	1,705	18.9	66	7.4	18	26.3	84
Rough and rotten trees	17.1	—	69.4	—	86.5	—	0.4	—	1.2	—	1.6	—
Total	398.7	1,218	299.8	487	698.5	1,705	19.3	66	8.6	18	27.9	84
Rolling uplands:												
Growing stock	349.9	1,074	210.7	528	560.6	1,602	26.8	87	7.5	22	34.3	109
Rough and rotten trees	2.9	—	63.2	—	66.1	—	0.2	—	1.0	—	1.2	—
Total	352.8	1,074	273.9	528	626.7	1,602	27.0	87	8.5	22	35.5	109
Sandhills:												
Growing stock	192.4	470	14.2	39	206.6	509	14.1	34	0.5	1	14.6	35
Rough and rotten trees	5.1	—	74.8	—	79.9	—	0.2	—	1.5	—	1.7	—
Total	197.5	470	89.0	39	286.5	509	14.3	34	2.0	1	16.3	35
Other misc. classes:												
Growing stock	801.5	2,223	389.0	1,048	1,190.5	3,271	24.6	88	11.8	34	36.4	122
Rough and rotten trees	55.6	—	122.2	—	177.8	—	0.5	—	2.1	—	2.6	—
Total	857.1	2,223	511.2	1,048	1,368.3	3,271	25.1	88	13.9	34	39.0	122
All classes:												
Growing stock	425.4	1,230	245.5	647	670.9	1,877	25.6	81	7.2	22	32.8	103
Rough and rotten trees	11.4	—	91.0	—	102.4	—	0.3	—	1.5	—	1.8	—
Total	436.8	1,230	336.5	647	773.3	1,877	25.9	81	8.7	22	34.6	103

Table 34.—Land area, by class, major forest type, and survey completion date, Florida, 1949, 1959, and 1970

Land use class	Survey completion date			Change 1959-1970
	1949 ¹	1959 ¹	1970	
- - - <i>Thousand acres</i> - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	12,558.7	9,546.5	9,875.3	+ 328.8
Hardwood types	6,218.9	7,625.5	6,356.3	—1,269.2
Total	18,777.6	17,172.0	16,231.6	— 940.4
Noncommercial forest land:				
Productive-reserved	46.4	92.7	94.4	+ 1.7
Unproductive	1,990.9	1,785.0	1,606.9	— 178.1
Total	2,037.3	1,877.7	1,701.3	— 176.4
Nonforest land	13,782.3	15,323.2	16,698.0	+1,374.8
All land ²	34,597.2	34,372.9	34,630.9	+ 258.0

¹Area breakdowns by land use class are adjusted because of the reclassification of 2,673,500 acres from commercial forest to natural rangeland and unproductive forest.

²Excludes all water areas.

Table 35.—Volume¹ of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date, Florida, 1949, 1959, and 1970

Species group	Year	All classes	Diameter class (inches at breast height)								21.0 and larger
			5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	
SAWTIMBER (In million board feet, International 1/4-inch rule)											
Softwood	1949	14,826.4	—	—	4,927.5	4,461.0	2,837.4	1,273.9	631.7	223.9	471.0
	1959	15,597.3	—	—	4,649.2	4,687.7	3,049.8	1,623.1	821.2	394.2	372.1
	1970	19,966.1	—	—	5,452.5	5,593.3	4,119.1	2,397.4	1,296.6	531.8	575.4
Hardwood	1949	9,439.0	—	—	—	1,756.2	1,928.0	1,508.9	1,288.6	936.1	2,021.2
	1959	9,262.0	—	—	—	1,777.0	1,966.5	1,623.3	1,261.6	902.4	1,731.2
	1970	10,498.4	—	—	—	1,951.9	2,133.7	1,813.4	1,489.1	1,017.0	2,093.3
GROWING STOCK (In million cubic feet)											
Softwood	1949	5,065.2	655.4	1,060.3	1,308.7	994.3	568.5	233.2	115.4	42.6	86.8
	1959	5,460.1	796.7	1,173.5	1,239.0	1,047.5	612.4	297.7	151.1	73.9	68.3
	1970	6,904.2	1,115.9	1,381.2	1,451.6	1,248.9	826.6	439.2	237.2	100.2	103.4
Hardwood	1949	3,517.6	347.2	415.2	488.3	516.7	487.6	346.7	272.5	203.1	440.3
	1959	3,600.1	359.9	454.7	552.6	522.4	498.4	372.9	266.5	195.3	377.4
	1970	3,984.2	383.6	505.4	572.1	575.6	538.8	416.1	315.8	220.4	456.4
ALL LIVE TIMBER (In million cubic feet)											
Softwood	1949	5,199.5	687.1	1,092.5	1,339.2	1,005.6	576.5	235.5	117.8	44.4	100.9
	1959	5,609.6	837.1	1,209.7	1,268.1	1,060.2	620.9	300.9	154.7	78.6	79.4
	1970	7,089.1	1,165.0	1,424.0	1,485.8	1,263.4	838.0	443.6	242.6	105.4	121.3
Hardwood	1949	4,816.8	598.5	629.8	674.1	681.1	608.1	425.4	335.0	257.6	607.2
	1959	4,940.3	620.6	692.2	762.4	689.4	621.7	457.3	330.4	245.7	520.6
	1970	5,461.3	659.1	768.2	790.7	757.8	674.1	512.6	390.6	278.1	630.1

¹In order to provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and timber specifications used in previous surveys.

Table 36.—Volume of all live timber, by species group and Survey Unit, Florida, 1949, 1959, and 1970

Species group and Survey Unit	1949	1959	Change 1949-1959	1970	Change 1959-1970
	<i>Million cu. ft.</i>	<i>Million cu. ft.</i>	<i>Percent</i>	<i>Million cu. ft.</i>	<i>Percent</i>
Softwood:					
Northeast	2,673.2	2,637.6	— 35.6	3,402.1	+ 764.5
Northwest	1,304.8	1,723.3	+ 418.5	2,207.2	+ 483.9
Central	955.0	906.1	— 48.9	1,130.9	+ 224.8
South	266.5	342.6	+ 76.1	348.9	+ 6.3
All units	5,199.5	5,609.6	+ 410.1	7,089.1	+ 1,479.5
Hardwood:					
Northeast	2,066.7	2,151.3	+ 84.6	2,307.1	+ 155.8
Northwest	1,719.8	1,799.7	+ 79.9	1,971.4	+ 171.7
Central	1,003.2	921.4	— 81.8	1,126.5	+ 205.1
South	27.1	67.9	+ 40.8	56.3	— 11.6
All units	4,816.8	4,940.3	+ 123.5	5,461.3	+ 521.0

Knight, Herbert A., and McClure, Joe P.

1971. Florida's Timber, 1970. Southeast. Forest Exp. Sta., USDA Forest Serv. Resource Bull. SE-20, 48 pp.

The fourth Forest Survey in Florida shows that the volume of growing-stock timber has increased from 9.1 to 10.9 billion cubic feet, or 20 percent, since 1959. Almost one-fourth of the inventory is slash pine which is the State's predominant species. Area of commercial forest land has decreased about 5 percent because of the actual diversion of forest land to agricultural, urban, and other uses. An additional 2.7 million acres in South and Central Florida formerly classified as commercial forest were reclassified either to natural rangeland or unproductive forest. Area of commercial forest land now totals 16.2 million acres, or 46 percent of the total land. Since 1959, about 2.0 million acres have been artificially regenerated, which brings the total area planted up to 2.8 million acres. In 1969, net growth exceeded timber removals by 184 million cubic feet, or 53 percent. Pulpwood is the leading timber product in terms of volume.

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U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE



SOUTHEASTERN FOREST EXPERIMENT STATION
ASHEVILLE, NORTH CAROLINA



FOREST STATISTICS for Southeast Georgia 1971



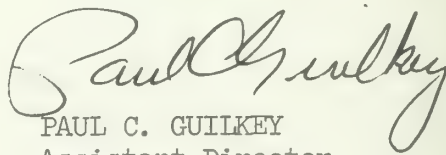
FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in Southeast Georgia. The survey was started in October 1970 and completed in August 1971. Findings of the previous surveys, completed in 1934, 1952, and 1960, provide the basis for measuring changes that have occurred and trends that have developed over the past 37 years. In this report, the primary emphasis is on the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and ascertain rates of timber growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 35-county area covered by this report is one of five Survey Units in Georgia. A comparable report, "Forest Statistics for Southwest Georgia, 1971," USDA Forest Service Resource Bulletin SE-19, was issued in February 1970, and similar reports for the other three units will be issued as the Statewide survey progresses. When completed, this survey will provide updated statistics on the timber resource for all of Georgia.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Georgia Forestry Commission and forest industry in the collection of the field data.


PAUL C. GUILKEY
Assistant Director

**Forest Statistics
for
Southeast Georgia
1971**

by

Thomas R. Bellamy, Associate Mensurationist

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HIGHLIGHTS

Since 1960 in Southeast Georgia--

- commercial forest area declined by 6 percent, or about one-half million acres. Diversion to agricultural uses, primarily pasture and cropland, totaled 221,300 acres, and 148,800 acres were diverted to urban uses, lakes, and small ponds. In contrast, 201,500 acres of new forest were added. Over 325,000 acres in the Okefenokee National Wildlife Refuge were reclassified as productive-reserved forest. Commercial forest land now totals 7.4 million acres, or 69 percent of this 35-county area.
- commercial forest owned by wood-using industry increased 8 percent, and is now over 2 million acres. An additional 570,000 acres are under long-term lease, which means 36 percent of the commercial forest area is now under forest industry management. Farmer and miscellaneous private forest area decreased by 315,000 acres, or 6 percent, primarily because of land clearing. Only 4 percent of the forest area in Southeast Georgia is publicly owned, mostly in the Fort Stewart Military Reservation and Waycross State Forest.
- average basal area of all live trees 5.0 inches and larger increased from 45 to 51 square feet per acre, and the number of sapling-sized trees increased from 417 to 500 per acre. The 10- and 12-inch class softwoods declined by about 5 percent because of over-harvest.
- volume of growing stock increased by 616 million cubic feet. Softwoods accounted for 248 million cubic feet, or 40 percent of the increase, while hardwoods increased 369 million cubic feet. This increase was largely in blackgum, sweetgum, and low-quality red oaks. Slash pine gained 15 percent and now comprises 58 percent of the softwood volume. Total growing-stock volume reached 7.3 billion cubic feet and includes 20.7 billion board feet of sawtimber.
- approximately 1 million acres were artificially regenerated, with 72 percent of these located south of the Altamaha River. About 1.5 million acres of commercial forest now show evidence of artificial regeneration; however, 2 out of every 7 acres still need artificial regeneration with site preparation. About 1.6 million acres in need of regeneration are in private, nonindustrial ownership. Over 60 percent of the commercial forest area showed evidence of treatment or disturbance, with harvest, regeneration, cleaning, and prescribed burning having the most frequent occurrence.

In 1970--

- net growth of growing stock totaled 414 million cubic feet and exceeded removals by only 46 million cubic feet, or 11 percent. Softwood accounted for 81 percent of the net growth. Two-thirds of the hardwood growth occurred in lowland stands. Almost all of the surplus growth was on private, nonindustrial lands.
- removals of growing stock totaled 368 million cubic feet, with softwoods accounting for 85 percent of the total. Although removals were distributed proportionally to the area of commercial forest by ownership classes, removals on forest industry lands slightly exceeded growth. The annual harvest of pulpwood--the leading timber product in terms of volume--has increased 40 percent since 1960.
- mortality of growing stock totaled 35 million cubic feet, which reduced gross growth by 8 percent. Softwood mortality amounted to 58 percent of the total, and the leading causes of death were suppression, weather, fire, insects, and disease.
- the apparent margin of growth over removals across all counties masks highly variable situations in localized areas. Growth on volume where owners are unwilling to sell and growth on lands with poor logging opportunities reduces this margin even further. In the area south of the Altamaha River, removals of pine growing stock exceeded net growth by 26 percent, and inventory of softwood has been reduced by 12 percent since 1960. This situation is not likely to improve until some 740,000 acres of plantations established since 1960 become merchantable.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 35,837 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 2,910 of these 16-point clusters was ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 1,987 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on the trees tallied at 1 out of every 20 sample locations in Southeast Georgia, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same 5-percent subsample of plots used for the tree-volume study in Southeast Georgia also served as a quality control of field measurements.
4. Felled trees were measured at 22 active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 1,919 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	0.90
Per billion cubic feet of growing stock - - - - -	5.69
Per billion cubic feet of net annual growth - - - - -	1.35
Per billion cubic feet of annual removals - - - - -	2.62

Sampling errors for county and unit totals,^{1/} in terms of one standard error

County	Commercial forest area	Cubic-foot volume of growing stock		
		Inventory	Growth	Removals
- - - - - <u>Sampling error</u> ^{2/} - - - - -				
Appling	2.00	12.61	12.68	19.11
Atkinson	1.96	13.99	15.74	21.01
Bacon	3.68	17.61	22.03	28.69
Brantley	0.96	11.96	10.54	24.73
Bryan	1.93	10.80	11.42	21.96
Bulloch	2.08	9.40	10.53	22.16
Camden	1.78	11.73	11.45	24.51
Candler	2.66	23.38	21.05	44.82
Charlton	0.55	12.30	11.75	23.50
Chatham	3.82	15.87	20.17	40.00
Clinch	0.45	9.07	9.54	22.76
Coffee	2.15	11.07	10.20	21.15
Dodge	1.91	10.53	10.95	21.44
Echols	0.93	12.46	11.80	15.98
Effingham	1.69	9.55	8.03	20.54
Emanuel	1.74	9.63	9.82	21.63
Evans	2.98	23.62	17.29	45.98
Glynn	2.93	17.76	18.23	27.30
Jeff Davis	2.00	13.35	16.34	25.41
Jenkins	2.32	16.82	12.04	30.36
Johnson	2.81	15.13	12.34	31.24
Laurens	1.66	7.03	7.14	19.26
Liberty	2.64	11.04	10.93	17.20
Long	1.13	12.46	13.59	30.58
McIntosh	2.24	11.75	14.90	32.75
Montgomery	2.31	15.38	13.44	36.20
Pierce	2.13	11.47	11.71	29.27
Screven	1.70	10.79	9.87	29.60
Tattnall	1.80	12.84	11.92	27.91
Telfair	1.57	11.96	13.47	22.48
Toombs	4.28	14.62	13.77	28.90
Treutlen	2.29	13.56	11.19	35.75
Ware	1.08	9.85	9.78	21.34
Wayne	1.16	12.04	12.00	18.32
Wheeler	1.83	11.85	12.75	34.04
Total	0.33	2.11	2.10	4.32

^{1/} Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: e = Sampling error of the volume or area total in question.

SE = Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ₁ /
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

₁/ Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	61.0	61.0	68.2	60.0
8	68.6	68.1	76.0	68.4
10	73.5	73.1	81.4	73.4
12	77.0	76.7	85.2	76.4
14	79.4	79.4	88.2	78.4
16	81.2	81.6	90.4	79.8
18	82.2	83.3	92.3	80.8
20	83.1	84.8	93.8	81.5
22	83.4	86.0	95.1	82.1
24+	84.2	87.7	99.4	83.2
Average	73.4	72.3	81.5	74.0

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in Southeast Georgia was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1971

County	All land ^{1/}	Forest land				Nonforest land ^{2/}
		Total	Commercial forest	Unproductive forest	Productive- reserved	
----- Thousand acres -----						
Appling	328.2	233.8	233.8	--	--	94.4
Atkinson	202.9	161.9	161.9	--	--	41.0
Bacon	187.5	117.3	117.3	--	--	70.2
Brantley	286.1	254.3	254.3	--	--	31.8
Bryan	282.8	227.8	227.7	0.1	--	55.0
Bulloch	438.4	242.3	242.3	--	--	196.1
Camden	420.2	323.4	320.6	2.3	0.5	96.8
Candler	160.7	88.9	88.9	--	--	71.8
Charlton	511.4	492.3	332.2	--	160.1	19.1
Chatham	289.4	126.5	123.3	0.3	2.9	162.9
Clinch	509.2	489.4	473.4	1.2	14.8	19.8
Coffee	392.0	245.9	244.4	--	1.5	146.1
Dodge	320.0	201.0	201.0	--	--	119.0
Echols	272.0	252.5	251.5	1.0	--	19.5
Effingham	307.2	247.8	247.8	--	--	59.4
Emanuel	439.0	311.9	311.9	--	--	127.1
Evans	119.1	75.7	75.7	--	--	43.4
Glynn	282.6	178.9	175.5	0.2	3.2	103.7
Jeff Davis	211.8	155.1	155.1	--	--	56.7
Jenkins	224.6	138.0	137.1	--	0.9	86.6
Johnson	200.3	112.7	112.7	--	--	87.6
Laurens	519.0	304.4	304.4	--	--	214.6
Liberty	327.4	252.8	252.6	0.2	--	74.6
Long	257.9	243.0	243.0	--	--	14.9
McIntosh	287.8	203.7	200.9	2.8	(3/)	84.1
Montgomery	151.7	106.1	106.1	--	--	45.6
Pierce	218.9	139.2	139.2	--	--	79.7
Screven	416.3	244.7	244.7	--	--	171.6
Tattnall	315.5	200.2	200.0	--	0.2	115.3
Telfair	281.4	211.0	210.9	--	0.1	70.4
Toombs	236.2	137.7	137.7	--	--	98.5
Treutlen	123.9	88.5	88.5	--	--	35.4
Ware	583.6	510.4	344.9	14.8	150.7	73.2
Wayne	413.4	336.4	336.4	--	--	77.0
Wheeler	195.5	143.9	142.9	--	1.0	51.6
Total	10,713.9	7,799.4	7,440.6	22.9	335.9	2,914.5

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 118,800 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

^{3/} Less than 50 acres.

Table 2.--Area of commercial forest land, by ownership class and county, 1971

County	All ownerships	Ownership class							Thousand acres		
		National Forest	Miscellaneous Federal	State	County and municipal	Forest ^{2/} industry	Farmer	Miscellaneous private			
								Corporate			Individual
Appling	233.8	--	--	--	0.8	38.6	101.8	--	--	92.6	
Atkinson	161.9	--	--	--	--	57.2	59.8	--	--	44.9	
Bacon	117.3	--	--	--	0.1	25.3	65.7	8.7	--	17.5	
Brantley	254.3	--	--	9.0	--	116.0	46.7	28.7	--	53.9	
Bryan	227.7	--	95.1	(1/)	--	54.6	30.0	3.0	--	45.0	
Bulloch	242.3	--	--	0.1	0.2	26.8	153.1	12.4	--	49.7	
Camden	320.6	--	4.5	--	--	128.6	9.2	18.3	--	160.0	
Candler	88.9	--	--	--	--	10.0	63.1	--	--	15.8	
Charlton	332.2	--	4.3	--	1.0	152.5	26.4	74.0	--	74.0	
Chatham	123.3	--	1.6	(1/)	1.2	36.0	19.2	--	--	65.3	
Clinch	473.4	--	1.2	--	0.1	208.4	32.9	95.6	--	135.2	
Coffee	244.4	--	--	--	--	15.2	119.9	3.5	--	105.8	
Dodge	201.0	--	--	--	--	21.7	102.5	7.3	--	69.5	
Echols	251.5	--	--	--	--	55.9	22.6	127.9	--	45.1	
Effingham	247.8	--	--	--	0.2	55.4	58.5	8.3	--	125.4	
Emanuel	311.9	--	--	--	0.1	61.9	124.9	29.4	--	95.6	
Evans	75.7	--	14.5	--	(1/)	6.3	39.9	--	--	15.0	
Glynn	175.5	--	1.4	1.5	(1/)	84.9	3.8	11.5	--	72.4	
Jeff Davis	155.1	--	--	--	--	27.3	67.7	7.5	--	52.6	
Jenkins	137.1	--	--	--	--	39.4	81.4	--	--	16.2	
Johnson	112.7	--	0.1	--	--	16.8	73.8	--	--	22.1	
Laurens	304.4	--	--	0.1	0.3	20.4	163.1	7.1	--	113.4	
Liberty	252.6	--	105.3	--	--	56.2	9.6	--	--	81.5	
Long	243.0	--	23.7	--	--	112.4	34.2	8.6	--	64.1	
McIntosh	200.9	--	0.7	12.9	--	119.3	11.3	17.0	--	39.7	
Montgomery	106.1	--	--	0.1	--	11.2	53.1	3.8	--	37.9	
Pierce	139.2	--	--	--	0.1	26.7	91.7	--	--	20.7	
Screven	244.7	--	--	--	1.2	53.5	114.8	27.7	--	47.5	
Tattnall	200.0	--	3.7	2.0	--	32.7	113.1	--	--	48.5	
Telfair	210.9	--	--	0.1	0.1	37.4	71.1	--	--	102.2	
Toombs	137.7	--	--	0.2	0.5	23.9	62.0	14.6	--	36.5	
Treutlen	88.5	--	--	--	(1/)	7.4	52.7	4.1	--	24.3	
Ware	344.9	--	3.9	26.9	1.3	147.0	46.3	11.6	--	107.9	
Wayne	336.4	--	--	--	0.3	170.0	63.1	3.3	--	99.7	
Wheeler	142.9	--	--	0.1	(1/)	18.4	60.5	--	--	63.9	
Total	7,440.6	--	260.0	53.0	7.5	2,075.3	2,249.5	533.9	--	2,261.4	

^{1/} Less than 50 acres.^{2/} Not including 570,300 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1971

County	All type groups	Forest-type groups					
		Longleaf- slash	Loblolly- shortleaf	Oak- pine	Oak- hickory	Oak-gum- cypress	Elm-ash- cottonwood
----- Thousand acres -----							
Appling	233.8	151.5	11.8	21.1	2.6	46.8	--
Atkinson	161.9	99.8	11.2	18.3	7.5	25.1	--
Bacon	117.3	76.7	4.4	15.9	--	20.3	--
Brantley	254.3	148.8	4.1	32.8	10.8	57.8	--
Bryan	227.7	91.9	40.8	34.8	13.5	46.7	--
Bulloch	242.3	81.1	10.7	60.4	31.4	58.7	--
Camden	320.6	146.5	33.2	44.0	28.7	65.2	3.0
Candler	88.9	28.9	6.3	28.4	9.5	15.8	--
Charlton	332.2	234.8	14.1	25.2	24.1	34.0	--
Chatham	123.3	14.6	25.6	18.5	38.2	26.4	--
Clinch	473.4	284.7	24.8	54.5	15.8	93.6	--
Coffee	244.4	149.2	7.1	38.8	3.5	45.8	--
Dodge	201.0	86.2	7.3	37.3	40.2	22.0	8.0
Echols	251.5	151.8	3.8	29.6	14.6	48.0	3.7
Effingham	247.8	84.4	26.7	50.6	35.2	43.8	7.1
Emanuel	311.9	161.2	12.5	61.0	33.1	44.1	--
Evans	75.7	24.3	15.0	5.7	10.0	20.7	--
Glynn	175.5	53.5	23.3	37.6	41.4	19.7	--
Jeff Davis	155.1	75.2	16.6	27.9	15.8	19.6	--
Jenkins	137.1	44.7	12.2	14.2	30.5	35.5	--
Johnson	112.7	38.8	24.0	20.4	22.1	3.7	3.7
Laurens	304.4	118.6	42.6	32.3	49.6	54.2	7.1
Liberty	252.6	110.7	38.3	25.0	37.0	41.6	--
Long	243.0	71.8	24.4	46.1	11.5	68.5	20.7
McIntosh	200.9	74.5	18.2	16.1	27.3	53.5	11.3
Montgomery	106.1	41.7	7.6	26.5	15.1	11.4	3.8
Pierce	139.2	68.2	8.9	20.8	11.8	29.5	--
Screven	244.7	73.6	23.8	42.8	34.4	59.0	11.1
Tattnall	200.0	98.7	12.1	15.4	39.6	26.1	8.1
Telfair	210.9	118.4	11.6	37.3	11.6	22.2	9.8
Toombs	137.7	67.3	--	36.8	4.4	25.5	3.7
Treutlen	88.5	64.6	--	15.8	8.1	--	--
Ware	344.9	248.7	15.9	25.4	6.4	48.5	--
Wayne	336.4	212.2	24.9	39.0	13.3	43.1	3.9
Wheeler	142.9	72.0	3.3	28.1	8.0	23.5	8.0
Total	7,440.6	3,669.6	567.1	1,084.4	706.6	1,299.9	113.0

Table 4.--Area of commercial forest land, by stand-size class and county, 1971

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling- seedling	
- - - - - <u>Thousand acres</u> - - - - -					
Appling	233.8	65.8	73.3	92.1	2.6
Atkinson	161.9	54.2	51.2	45.6	10.9
Bacon	117.3	29.1	46.6	37.2	4.4
Brantley	254.3	60.2	87.6	95.2	11.3
Bryan	227.7	84.5	88.9	51.3	3.0
Bulloch	242.3	100.4	84.2	53.6	4.1
Camden	320.6	115.2	83.3	122.1	--
Candler	88.9	34.7	18.9	22.7	12.6
Charlton	332.2	101.4	72.4	131.4	27.0
Chatham	123.3	48.4	33.8	33.4	7.7
Clinch	473.4	103.7	137.1	206.0	26.6
Coffee	244.4	67.0	95.8	71.1	10.5
Dodge	201.0	48.3	95.1	46.6	11.0
Echols	251.5	53.6	88.8	94.0	15.1
Effingham	247.8	103.1	78.3	66.4	--
Emanuel	311.9	103.8	97.1	96.3	14.7
Evans	75.7	30.8	10.7	29.2	5.0
Glynn	175.5	64.1	52.2	54.8	4.4
Jeff Davis	155.1	46.7	42.1	58.0	8.3
Jenkins	137.1	46.7	48.8	41.6	--
Johnson	112.7	33.2	25.8	53.7	--
Laurens	304.4	115.4	118.1	70.9	--
Liberty	252.6	100.9	82.7	65.4	3.6
Long	243.0	85.9	58.3	86.6	12.2
McIntosh	200.9	81.4	53.9	65.6	--
Montgomery	106.1	53.0	7.6	37.9	7.6
Pierce	139.2	74.0	20.7	38.6	5.9
Screven	244.7	107.3	71.3	66.1	--
Tattnall	200.0	67.7	50.2	53.5	28.6
Telfair	210.9	70.2	67.8	68.5	4.4
Toombs	137.7	36.8	55.4	41.8	3.7
Treutlen	88.5	38.4	25.8	20.3	4.0
Ware	344.9	81.3	102.2	147.3	14.1
Wayne	336.4	85.2	68.0	168.8	14.4
Wheeler	142.9	56.4	43.7	42.8	--
Total	7,440.6	2,448.8	2,237.7	2,476.4	277.7

Table 5.--Area of commercial forest land, by site class and county,
1971

County	All classes	Site class				
		1	2	3	4	5
- - - - - <u>Thousand acres</u> - - - - -						
Appling	233.8	--	--	21.1	212.7	--
Atkinson	161.9	--	--	25.4	115.2	21.3
Bacon	117.3	--	--	24.7	92.6	--
Brantley	254.3	--	--	14.9	220.3	19.1
Bryan	227.7	--	4.6	31.6	187.0	4.5
Bulloch	242.3	--	6.6	52.1	175.3	8.3
Camden	320.6	3.0	12.1	56.0	231.2	18.3
Candler	88.9	--	--	9.5	57.3	22.1
Charlton	332.2	5.3	--	31.1	257.7	38.1
Chatham	123.3	--	--	36.4	86.9	--
Clinch	473.4	--	3.3	39.7	404.7	25.7
Coffee	244.4	--	7.1	38.8	180.9	17.6
Dodge	201.0	--	--	32.9	164.4	3.7
Echols	251.5	--	3.7	17.9	211.5	18.4
Effingham	247.8	--	7.1	56.5	175.9	8.3
Emanuel	311.9	--	3.7	86.8	161.9	59.5
Evans	75.7	--	--	20.7	50.0	5.0
Glynn	175.5	4.4	4.5	29.3	137.3	--
Jeff Davis	155.1	--	--	32.4	118.9	3.8
Jenkins	137.1	4.1	--	43.6	81.3	8.1
Johnson	112.7	--	--	36.9	75.8	--
Laurens	304.4	--	--	85.1	205.1	14.2
Liberty	252.6	--	--	45.0	199.2	8.4
Long	243.0	--	7.2	63.6	144.2	28.0
McIntosh	200.9	--	5.7	28.3	152.0	14.9
Montgomery	106.1	--	--	53.1	53.0	--
Pierce	139.2	--	--	8.9	118.5	11.8
Screven	244.7	7.9	11.1	63.4	120.3	42.0
Tattnall	200.0	--	--	53.0	147.0	--
Telfair	210.9	--	4.4	76.6	129.9	--
Toombs	137.7	--	7.3	57.1	73.3	--
Treutlen	88.5	--	--	46.5	42.0	--
Ware	344.9	--	--	52.5	270.2	22.2
Wayne	336.4	--	7.2	52.5	263.4	13.3
Wheeler	142.9	--	--	33.8	109.1	--
Total	7,440.6	24.7	95.6	1,457.7	5,426.0	436.6

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1971

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - Thousand acres - - - - -						
Appling	233.8	9.8	62.7	97.5	61.2	2.6
Atkinson	161.9	--	29.2	89.7	32.2	10.8
Bacon	117.3	4.4	10.1	67.8	30.6	4.4
Brantley	254.3	3.6	56.6	113.8	69.0	11.3
Bryan	227.7	--	80.0	96.5	48.2	3.0
Bulloch	242.3	--	58.7	123.9	55.6	4.1
Camden	320.6	6.0	86.3	146.5	81.8	--
Candler	88.9	--	15.8	32.1	28.4	12.6
Charlton	332.2	--	64.0	166.7	74.5	27.0
Chatham	123.3	3.8	29.5	63.1	19.2	7.7
Clinch	473.4	10.7	92.7	257.3	86.1	26.6
Coffee	244.4	3.5	53.4	102.8	74.1	10.6
Dodge	201.0	3.7	32.9	108.1	45.3	11.0
Echols	251.5	7.5	44.2	105.8	79.0	15.0
Effingham	247.8	4.2	58.0	157.6	28.0	--
Emanuel	311.9	7.3	69.9	140.5	79.5	14.7
Evans	75.7	--	15.7	42.8	12.2	5.0
Glynn	175.5	7.6	40.5	79.0	43.9	4.5
Jeff Davis	155.1	--	31.6	64.7	50.5	8.3
Jenkins	137.1	3.0	31.5	66.0	36.6	--
Johnson	112.7	--	27.7	62.9	22.1	--
Laurens	304.4	11.2	107.8	146.4	39.0	--
Liberty	252.6	11.6	63.4	127.2	46.8	3.6
Long	243.0	3.6	44.1	124.2	58.9	12.2
McIntosh	200.9	10.1	40.3	101.4	49.1	--
Montgomery	106.1	--	26.5	64.4	7.6	7.6
Pierce	139.2	--	32.6	68.0	32.7	5.9
Screven	244.7	--	76.4	94.6	73.7	--
Tattnall	200.0	4.0	56.0	83.9	27.5	28.6
Telfair	210.9	0.2	36.5	117.4	52.4	4.4
Toombs	137.7	4.0	36.8	70.3	23.0	3.6
Treutlen	88.5	(2/)	16.2	54.2	14.0	4.1
Ware	344.9	3.9	79.1	152.1	95.7	14.1
Wayne	336.4	18.8	49.8	156.3	97.1	14.4
Wheeler	142.9	3.3	31.7	79.8	28.1	--
Total	7,440.6	145.8	1,688.2	3,625.3	1,703.6	277.7

^{1/} See stocking standards on page 12.

^{2/} Less than 50 acres.

Table 7.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	- Million board feet -					- Million cubic feet ^{1/} -				
Appling	659.6	525.6	45.8	55.4	32.8	233.6	179.2	13.6	31.4	9.1
Atkinson	397.4	283.5	34.4	79.5	--	147.6	93.5	11.3	42.8	--
Bacon	190.4	143.3	22.3	21.4	3.4	88.4	62.2	8.1	15.7	2.1
Brantley	465.3	251.1	25.4	137.4	51.4	193.1	106.1	13.6	56.7	16.7
Bryan	821.8	485.5	9.5	228.5	98.3	275.2	151.8	4.5	82.7	36.4
Bulloch	979.5	669.0	14.1	248.4	48.0	295.1	170.0	4.9	99.7	20.7
Candler	951.9	604.8	58.6	144.8	143.7	342.0	181.1	17.2	88.2	55.7
Charlton	266.6	187.5	10.1	57.5	11.5	84.3	48.8	2.6	27.6	5.7
Chatham	689.5	535.6	46.3	82.8	24.8	248.0	190.4	13.3	34.8	9.7
Clinch	511.2	289.8	8.5	117.8	95.1	165.0	71.3	4.2	55.0	34.7
Coffee	986.9	768.1	121.8	86.4	10.6	387.3	255.3	66.8	61.1	4.7
Dodge	564.1	422.4	30.6	87.6	23.5	205.9	141.1	12.7	42.5	9.6
Echols	402.6	270.6	3.9	91.0	37.1	167.1	108.7	1.0	43.7	13.7
Effingham	482.6	342.1	63.1	65.3	12.1	190.3	118.2	29.6	35.5	7.6
Emanuel	846.6	498.6	9.8	163.5	174.7	280.2	146.4	4.6	70.3	58.9
Evans	838.7	604.7	3.4	169.0	61.6	283.5	191.5	1.1	70.9	20.9
Glynn	230.7	123.4	20.6	51.3	35.4	81.2	33.1	6.8	30.2	11.7
Jeff Davis	615.6	358.3	77.9	62.0	117.4	201.3	101.8	19.6	29.2	50.7
Jenkins	329.7	277.7	6.2	27.3	18.5	122.7	98.5	3.0	14.0	7.2
Johnson	468.8	140.8	33.4	148.3	146.3	160.1	53.4	7.8	47.3	51.6
Laurens	250.1	139.7	--	49.2	61.2	88.1	46.9	--	23.8	17.1
Liberty	984.0	510.5	6.2	285.1	182.2	360.4	185.1	1.5	112.8	61.0
Long	875.2	583.2	25.8	163.5	102.7	278.9	165.2	7.9	68.8	37.0
McIntosh	895.7	401.2	64.5	188.6	241.4	279.1	120.2	21.9	75.7	61.3
Montgomery	586.1	221.5	71.9	119.5	173.2	216.6	86.3	21.2	58.4	50.7
Pierce	399.5	178.5	11.6	67.4	142.0	124.8	61.3	2.6	37.2	37.2
Scriven	471.8	357.2	21.7	69.6	23.3	150.9	96.7	7.0	37.1	10.1
Tattnall	1,029.0	456.3	71.6	320.6	180.5	298.8	121.6	17.6	103.1	56.5
Telfair	587.1	435.0	8.2	79.6	64.3	206.7	138.7	5.2	43.2	19.6
Toombs	502.4	316.5	15.5	110.4	60.0	189.8	115.9	3.3	46.1	21.9
Treutlen	355.4	252.6	3.9	75.0	23.9	155.0	99.9	0.9	43.5	10.7
Ware	271.6	235.4	--	20.6	15.6	106.0	84.5	--	14.7	6.7
Wayne	619.4	523.2	29.6	59.9	6.7	245.7	194.5	15.6	32.5	3.7
Wheeler	745.9	516.5	79.8	114.1	35.5	264.8	182.4	27.5	44.8	10.7
	430.5	247.5	--	126.1	56.9	152.4	92.0	0.2	44.0	16.7
Total	20,703.2	13,157.2	1,056.0	3,974.4	2,515.6	7,269.9	4,293.6	378.7	1,751.5	846.7

^{1/} Factors for converting to cords are shown on page 12.

Table 3.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1970

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet					Million cubic feet				
Appling	52.7	49.0	1.3	1.7	0.7	14.9	13.2	0.2	1.3	0.2
Atkinson	25.8	23.6	0.4	1.8	--	6.8	5.9	0.1	0.8	--
Bacon	18.2	17.1	0.2	0.7	0.2	6.9	6.3	0.1	0.4	0.1
Brantley	32.4	26.9	0.4	3.2	1.9	10.4	8.5	0.2	1.1	0.6
Bryan	58.7	48.1	0.6	6.0	4.0	15.3	12.2	0.1	1.9	1.1
Bulloch	63.2	50.6	0.3	9.7	2.6	15.6	11.3	0.1	3.0	1.2
Camden	60.8	49.2	1.8	4.7	5.1	17.0	12.7	0.3	2.6	1.4
Candler	16.1	12.7	0.2	2.9	0.3	3.9	3.1	(1/)	0.5	0.3
Charlton	53.1	47.7	1.2	3.8	0.4	16.8	15.2	0.2	1.0	0.4
Chatham	30.3	22.6	0.2	4.0	3.5	7.7	5.0	0.1	1.6	1.0
Clinch	74.9	68.9	3.0	2.4	0.6	22.7	20.1	0.9	1.6	0.1
Coffee	43.6	38.9	0.6	3.0	1.1	14.2	12.3	0.3	1.3	0.3
Dodge	37.0	31.3	0.1	3.2	2.4	10.5	8.6	(1/)	1.1	0.8
Echols	36.0	32.7	1.2	1.6	0.5	9.5	7.9	0.3	0.8	0.5
Effingham	54.4	43.2	0.2	4.7	6.3	15.2	10.8	0.1	2.0	2.3
Emanuel	66.6	55.9	0.1	8.0	2.6	17.0	13.4	(1/)	2.5	1.1
Evans	15.6	10.2	0.5	3.7	1.2	3.7	2.4	0.1	0.7	0.5
Glynn	45.2	35.1	3.0	1.7	5.4	10.6	7.5	0.7	0.7	1.7
Jeff Davis	31.1	29.8	0.1	0.6	0.6	9.2	8.5	(1/)	0.3	0.4
Jenkins	30.1	18.1	1.3	4.8	5.9	9.8	5.6	0.2	1.8	2.2
Johnson	19.3	15.6	--	1.9	1.8	5.1	3.8	--	0.9	0.4
Laurens	75.2	56.2	0.1	11.5	7.4	20.9	14.7	(1/)	4.0	2.2
Liberty	58.5	51.0	0.3	4.5	2.7	15.9	13.1	0.1	1.7	1.0
Long	46.8	33.8	2.1	4.7	6.2	12.5	9.2	0.3	1.7	1.3
McIntosh	36.5	24.2	2.5	5.0	4.8	11.6	8.3	0.7	1.4	1.2
Montgomery	22.0	14.8	0.3	2.3	4.6	6.8	5.3	0.1	0.6	0.8
Pierce	31.2	26.6	0.3	2.4	1.9	7.9	5.9	0.1	1.5	0.4
Scriven	56.7	35.8	1.7	11.4	7.8	15.0	9.0	0.4	3.4	2.2
Tattnall	44.6	37.6	0.3	4.1	2.6	12.7	10.5	0.1	1.6	0.5
Telfair	44.3	37.2	0.5	3.9	2.7	10.8	8.4	0.1	1.0	1.3
Thomas	28.2	24.0	0.1	2.9	1.2	10.6	8.7	(1/)	1.4	0.5
Treutlen	26.7	24.7	--	1.0	1.0	6.4	5.7	--	0.4	0.3
Ware	51.7	48.7	0.5	1.6	0.9	15.2	14.3	0.2	0.6	0.1
Wayne	55.7	49.6	1.3	3.6	1.2	16.1	13.8	0.3	1.4	0.6
Wheeler	30.1	23.3	--	4.7	2.1	9.1	7.2	(1/)	1.3	0.6
Total	1,473.3	1,214.7	26.7	137.7	94.2	414.3	328.4	6.4	49.9	29.6

1/ Less than 50,000 cubic feet.

Table 10.--Area of commercial forest land, by forest type and ownership class, 1971

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
----- <u>Thousand acres</u> -----						
Softwood types:						
Longleaf pine	465.2	--	39.3	73.7	158.7	193.5
Slash pine	3,204.4	--	135.5	1,089.8	791.4	1,187.7
Loblolly pine	397.4	--	33.6	85.5	130.4	147.9
Shortleaf pine	3.5	--	--	--	--	3.5
Eastern redcedar	5.7	--	--	--	--	5.7
Pond pine	160.5	--	13.6	48.1	32.7	66.1
Total	4,236.7	--	222.0	1,297.1	1,113.2	1,604.4
Hardwood types:						
Oak-pine	1,084.4	--	47.4	262.6	360.6	413.8
Oak-hickory	570.3	--	4.5	152.0	216.0	197.8
Southern scrub oak	136.3	--	--	3.3	78.6	54.4
Oak-gum-cypress	1,299.9	--	46.6	325.5	466.1	461.7
Elm-ash-cottonwood	113.0	--	--	34.8	15.0	63.2
Total	3,203.9	--	98.5	778.2	1,136.3	1,190.9
All types	7,440.6	--	320.5	2,075.3	2,249.5	2,795.3

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1971

Ownership classes	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
----- <u>Thousand acres</u> -----						
National Forest	--	--	--	--	--	--
Other public	320.5	10.2	65.0	140.2	99.6	5.5
Forest industry	2,075.3	52.2	484.6	1,075.2	397.4	65.9
Farmer	2,249.5	23.1	488.7	1,140.9	519.6	77.2
Misc. private	2,795.3	60.3	649.9	1,269.0	687.0	129.1
All ownerships	7,440.6	145.8	1,688.2	3,625.3	1,703.6	277.7

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1971

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
- - - - - Million cubic feet - - - - -					
Sawtimber trees:					
Saw-log portion	4,059.0	2,522.6	224.4	801.9	510.1
Upper-stem portion	536.9	271.1	28.2	163.8	73.8
Total	4,595.9	2,793.7	252.6	965.7	583.9
Poletimber trees	2,674.0	1,499.9	126.1	785.8	262.2
All growing-stock trees	7,269.9	4,293.6	378.7	1,751.5	846.1
Rough trees:					
Sawtimber-size trees	180.5	4.4	6.3	85.4	84.4
Poletimber-size trees	311.3	11.9	7.6	181.9	109.9
Total	491.8	16.3	13.9	267.3	194.3
Rotten trees:					
Sawtimber-size trees	207.1	2.8	13.7	115.8	74.8
Poletimber-size trees	44.0	0.5	0.8	37.8	4.9
Total	251.1	3.3	14.5	153.6	79.7
Salvable dead trees:					
Sawtimber-size trees	5.0	2.6	2.4	--	--
Poletimber-size trees	5.4	3.2	--	1.4	0.8
Total	10.4	5.8	2.4	1.4	0.8
Total, all timber	8,023.2	4,319.0	409.5	2,173.8	1,120.9

Table 13.--Number of growing-stock trees on commercial forest land, by species and diameter class, 1971

Species	All classes	Diameter class (inches at breast height)														29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9						
		Thousand trees														
Softwood:																
Longleaf pine	60,401	19,140	14,763	12,795	8,611	3,656	1,017	328	91	--	--	--	--	--	--	--
Slash pine	352,346	184,619	87,873	42,296	21,910	9,931	3,790	1,167	454	297	--	--	--	--	--	9
Loblolly pine	68,834	28,182	17,625	10,418	5,630	3,381	1,844	874	450	425	--	--	--	--	--	5
Shortleaf pine	786	494	43	164	36	42	--	7	--	--	--	--	--	--	--	--
Pond pine	23,720	10,722	5,121	3,593	2,284	1,034	601	249	66	50	--	--	--	--	--	--
Spruce pine	1,250	504	246	165	141	85	42	42	7	14	--	--	--	--	--	4
Palmettocypress	4,793	1,260	1,153	713	529	490	379	129	57	71	--	--	--	--	--	12
Pondcypress	36,618	16,509	9,286	5,036	3,445	1,438	570	189	75	65	--	--	--	--	--	5
Eastern redcedar	307	70	46	51	73	15	49	--	--	--	--	--	--	--	--	3
Total softwoods	549,055	261,500	136,156	75,231	42,659	20,072	8,292	2,985	1,200	922	--	--	--	--	--	38
Hardwood:																
Select white oaks ^{1/}	3,703	1,923	673	327	304	217	40	104	61	52	--	--	--	--	--	2
Select red oaks ^{2/}	630	233	36	109	56	67	65	23	14	25	--	--	--	--	--	2
Other white oaks	4,749	1,179	743	794	585	468	296	165	194	225	--	--	--	--	--	100
Other red oaks	48,706	21,782	10,515	6,569	3,442	2,623	1,517	728	557	839	--	--	--	--	--	134
Hickory	3,503	1,131	618	604	471	303	130	153	32	56	--	--	--	--	--	5
Florida maple	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	21,864	8,389	5,830	3,302	1,888	1,088	586	470	143	165	--	--	--	--	--	3
Peach	69	--	--	29	18	14	--	8	--	--	--	--	--	--	--	--
Sweetgum	30,315	12,704	7,113	4,435	2,784	1,751	762	349	232	180	--	--	--	--	--	5
Tupelo and blackgum	104,098	41,926	25,942	17,018	9,329	5,331	2,564	1,219	366	387	--	--	--	--	--	16
Ash	6,359	2,652	1,588	868	547	312	201	117	34	34	--	--	--	--	--	6
Cottonwood	70	--	--	--	19	13	11	17	--	10	--	--	--	--	--	--
Basswood	7	--	--	--	--	--	--	7	--	--	--	--	--	--	--	--
Black walnut	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	6,510	2,409	976	1,126	750	589	362	163	72	63	--	--	--	--	--	--
Bay and magnolia	16,914	8,696	3,805	2,041	1,159	641	313	153	80	20	--	--	--	--	--	6
Elm	2,948	1,241	500	570	248	173	111	54	34	17	--	--	--	--	--	--
Black cherry	960	489	298	116	43	14	--	--	--	--	--	--	--	--	--	--
Sycamore	416	181	49	105	--	28	11	24	6	12	--	--	--	--	--	--
Hackberry	739	331	118	125	110	26	20	9	--	--	--	--	--	--	--	--
River birch	419	167	86	83	37	39	--	--	7	--	--	--	--	--	--	--
Other eastern hardwoods	1,741	1,035	245	208	115	71	40	18	--	9	--	--	--	--	--	--
Total hardwoods	254,790	106,538	59,135	38,429	21,905	13,768	7,029	3,781	1,832	2,094	--	--	--	--	--	279
All species	803,845	368,038	195,291	113,660	64,564	33,840	15,321	6,766	3,032	3,016	--	--	--	--	--	317

^{1/} Includes white and swamp chestnut oaks.

^{2/} Includes cherrybark and shumard oaks.

2.27.

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1971

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9			
----- Million cubic feet -----													
Softwood:													
Longleaf pine	672.4	54.7	108.9	175.3	179.3	98.8	35.8	14.5	5.1	--	--	--	--
Slash pine	2,696.2	503.0	596.2	564.9	473.2	290.2	152.2	60.6	29.2	24.7	2.0	2.0	2.0
Loblolly pine	714.0	75.4	112.5	127.4	115.6	95.7	73.8	44.7	28.8	39.3	0.8	0.8	0.8
Shortleaf pine	5.4	0.7	0.1	2.1	0.7	1.1	--	0.7	--	--	--	--	--
Pond pine	209.1	26.1	31.3	38.6	43.2	26.9	22.2	11.9	4.5	4.4	--	--	--
Spruce pine	16.1	1.7	1.7	1.9	2.7	2.2	1.9	1.6	0.4	1.2	0.9	0.9	0.9
Baldcypress	84.7	4.2	6.8	9.4	10.9	15.0	14.3	5.4	4.0	6.7	8.0	8.0	8.0
Pondcypress	317.9	55.7	66.9	58.2	63.5	35.3	18.2	8.1	4.3	5.5	2.2	2.2	2.2
Eastern redcedar	4.5	0.3	0.6	0.8	1.1	0.3	0.9	0.2	--	--	0.3	0.3	0.3
Total softwoods	4,720.3	721.8	925.0	978.6	890.2	565.5	319.2	147.7	76.3	81.8	14.2	14.2	14.2
Hardwood:													
Select white oaks ^{1/}	39.4	4.8	4.4	3.0	5.2	5.5	1.2	5.0	3.3	6.4	0.6	0.6	0.6
Select red oaks ^{2/}	12.4	0.6	0.3	1.1	0.9	1.7	2.0	1.2	0.8	3.1	0.7	0.7	0.7
Other white oaks	176.5	4.8	8.6	11.2	17.2	18.3	13.1	8.5	11.2	45.5	38.1	38.1	38.1
Other red oaks	658.2	62.2	72.1	77.1	64.8	76.0	56.0	39.3	35.7	122.9	52.1	52.1	52.1
Hickory	55.0	3.6	4.2	6.5	8.2	8.1	4.6	8.3	1.7	7.5	2.3	2.3	2.3
Florida maple	0.2	0.2	--	--	--	--	--	--	--	--	--	--	--
Soft maple	316.6	39.5	52.0	49.5	45.4	38.2	23.9	25.3	13.1	27.0	2.7	2.7	2.7
Beech	1.5	--	--	0.2	0.2	0.4	0.2	0.4	0.1	--	--	--	--
Sweetgum	339.4	30.4	48.5	55.1	58.2	53.4	30.9	19.8	15.1	25.2	2.8	2.8	2.8
Tupelo and blackgum	1,191.6	152.6	203.0	227.1	198.4	161.1	96.4	62.8	26.2	56.1	7.9	7.9	7.9
Ash	79.1	10.0	14.3	12.6	11.6	9.2	7.2	5.8	2.8	4.3	1.3	1.3	1.3
Cottonwood	3.2	--	--	--	0.4	0.4	0.4	0.8	--	1.2	--	--	--
Basswood	0.5	--	--	--	--	--	--	0.5	--	--	--	--	--
Black walnut	0.6	0.2	0.2	--	--	--	--	0.2	--	--	--	--	--
Yellow-poplar	91.3	7.0	7.2	14.0	14.6	16.3	12.3	8.2	4.1	7.4	0.2	0.2	0.2
Bay and magnolia	162.4	31.1	31.2	28.4	23.9	20.5	10.3	7.4	4.8	4.0	0.8	0.8	0.8
Elm	38.2	3.5	3.6	6.6	6.1	5.9	4.7	2.7	1.8	3.3	--	--	--
Black cherry	7.2	1.9	2.0	1.6	1.1	0.4	--	--	0.2	--	--	--	--
Sycamore	6.5	0.6	0.8	1.4	--	0.7	0.6	1.1	0.4	0.9	--	--	--
Hackberry	8.5	1.1	1.0	1.8	2.0	0.8	1.3	0.5	--	--	--	--	--
River birch	4.7	0.4	0.9	1.2	0.7	1.2	--	--	0.3	--	--	--	--
Other eastern hardwoods	99.5	31.1	27.1	17.1	7.1	3.8	6.8	3.4	1.0	2.1	--	--	--
Total hardwoods	3,292.5	385.6	481.4	515.5	466.0	421.9	271.9	201.2	122.6	316.9	109.5	109.5	109.5
All species	8,012.8	1,107.4	1,406.4	1,494.1	1,356.2	987.4	591.1	348.9	198.9	398.7	123.7	123.7	123.7

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark and Shumard oaks.

Table 15.--Volume of growing stock on commercial forest land, by species and diameter class, 1971

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9			
----- Million cubic feet -----													
Softwood:													
Longleaf pine	671.1	54.6	108.7	175.1	179.3	98.0	35.8	14.5	5.1	--	--	--	--
Slash pine	2,688.3	499.1	594.3	564.1	473.0	289.2	152.2	60.6	29.1	24.7	2.0	2.0	2.0
Loblolly pine	707.4	73.7	109.8	126.2	115.4	95.2	73.8	44.7	28.8	39.0	0.8	0.8	0.8
Shortleaf pine	5.1	0.7	0.1	2.1	0.7	1.1	--	0.4	--	--	--	--	--
Pond pine	205.6	25.2	30.3	37.8	43.2	26.7	22.2	11.7	4.1	4.4	--	--	--
Spruce pine	16.1	1.7	1.7	1.9	2.7	2.2	1.8	1.6	0.4	1.2	0.9	0.9	0.9
Baldcypress	76.8	3.8	6.8	8.7	10.5	14.7	14.2	5.4	3.2	6.3	3.2	3.2	3.2
Pondcypress	298.9	52.5	62.7	54.9	61.1	33.8	17.6	7.8	3.8	4.0	0.7	0.7	0.7
Eastern redcedar	3.0	0.1	0.2	0.4	0.9	0.2	0.9	--	--	--	0.3	0.3	0.3
Total softwoods	4,672.3	711.4	914.6	971.2	886.8	561.1	318.5	146.7	74.5	79.6	7.9	7.9	7.9
Hardwood:													
Select white oaks ^{1/}	38.2	4.8	4.1	3.0	5.0	5.5	1.2	4.7	3.0	6.3	0.6	0.6	0.6
Select red oaks ^{2/}	11.8	0.6	0.3	1.1	0.9	1.7	2.0	1.0	0.6	2.9	0.7	0.7	0.7
Other white oaks	111.9	2.5	3.6	7.3	9.5	12.2	9.4	6.8	9.2	26.0	25.4	25.4	25.4
Other red oaks	556.1	55.4	64.1	68.2	57.4	66.1	47.9	32.6	29.9	101.1	33.4	33.4	33.4
Hickory	50.6	2.7	3.8	6.4	8.2	7.5	4.2	7.7	1.7	7.0	1.4	1.4	1.4
Florida maple	--	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	218.2	23.7	35.1	36.0	32.6	27.8	18.2	20.1	6.9	17.4	0.4	0.4	0.4
Beech	1.2	--	--	0.2	0.2	0.4	--	0.4	--	--	--	--	--
Sweetgum	312.2	26.8	43.5	52.8	54.4	51.0	28.5	18.4	14.2	21.5	1.1	1.1	1.1
Tupelo and blackgum	944.9	108.4	156.1	183.6	163.9	139.2	82.6	52.6	17.2	38.5	2.8	2.8	2.8
Ash	64.3	7.1	10.7	9.9	9.6	8.4	6.8	5.2	1.9	3.4	1.3	1.3	1.3
Cottonwood	3.2	--	--	--	0.4	0.4	0.4	0.8	--	1.2	--	--	--
Baswood	0.5	--	--	--	--	--	--	0.5	--	--	--	--	--
Black walnut	0.2	0.2	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	87.1	6.5	6.5	13.5	14.4	16.1	12.0	7.6	3.7	6.8	--	--	--
Bay and magnolia	130.7	25.3	24.5	21.7	20.5	16.3	9.6	6.3	3.7	2.0	0.8	0.8	0.8
Elm	32.9	2.6	2.7	5.7	4.9	5.7	4.2	2.7	1.8	2.6	--	--	--
Black cherry	5.0	1.3	1.8	1.0	0.5	0.4	--	--	--	--	--	--	--
Sycamore	5.8	0.6	0.4	1.4	--	0.7	0.4	1.1	0.3	0.9	--	--	--
Hackberry	7.4	0.8	0.9	1.6	2.0	0.8	0.8	0.5	--	--	--	--	--
River birch	4.0	0.4	0.6	0.8	0.7	1.2	--	--	0.3	--	--	--	--
Other eastern hardwoods	11.4	2.0	1.4	2.0	1.8	1.6	1.3	0.6	--	0.7	--	--	--
Total hardwoods	2,597.6	271.7	360.1	416.2	386.9	363.0	229.5	169.6	94.4	238.3	67.9	67.9	67.9
All species	7,269.9	983.1	1,274.7	1,387.4	1,273.7	924.1	548.0	316.3	168.9	317.9	75.8	75.8	75.8

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark and Shumard oaks.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1971

Species	All classes	Diameter class (inches at breast height)										29.0 and larger
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9				
----- Million board feet -----												
Softwood:												
Longleaf pine	2,367.8	745.6	848.4	493.5	187.3	69.6	23.4	--	--	--	--	--
Slash pine	7,380.9	2,200.0	2,219.0	1,501.2	831.2	332.0	154.5	131.9	--	--	--	11.1
Loblolly pine	2,619.9	503.9	556.6	502.8	415.7	250.6	163.0	223.1	--	--	--	4.2
Shortleaf pine	20.1	8.1	3.1	6.7	--	2.2	--	--	--	--	--	--
Pond pine	708.6	142.1	200.0	138.8	118.9	61.0	22.8	25.0	--	--	--	--
Spruce pine	59.9	6.8	12.7	10.0	9.8	7.8	2.1	5.8	--	--	--	4.9
Baldcypress	301.4	19.9	38.9	71.5	74.5	27.4	16.9	35.3	--	--	--	17.0
Pondcypress	743.9	177.4	245.7	153.8	85.8	39.9	19.5	18.5	--	--	--	3.3
Eastern redcedar	10.7	1.3	3.3	0.6	4.2	--	--	--	--	--	--	1.3
Total softwoods	14,213.2	3,805.1	4,127.7	2,878.9	1,727.4	790.5	402.2	439.6	--	--	--	41.8
Hardwood:												
Select white oaks ^{1/}	120.9	--	15.9	22.5	5.5	25.9	16.4	32.0	--	--	--	2.7
Select red oaks ^{2/}	48.0	--	3.1	6.1	10.0	6.1	4.3	14.9	--	--	--	3.5
Other white oaks	397.2	--	30.4	43.7	35.5	32.2	47.6	112.9	--	--	--	94.9
Other red oaks	1,605.2	--	188.3	271.0	202.9	168.3	164.1	462.7	--	--	--	147.9
Hickory	167.6	--	23.9	31.7	18.3	41.7	9.9	35.2	--	--	--	6.9
Florida maple	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	496.8	--	99.0	103.2	71.8	101.2	36.6	83.5	--	--	--	1.5
Beech	4.1	--	0.5	1.5	--	2.1	--	--	--	--	--	--
Sweetgum	768.3	--	176.4	203.9	121.2	95.3	77.2	90.0	--	--	--	4.3
Tupelo and blackgum	1,992.3	--	497.8	542.7	364.8	283.4	98.0	192.1	--	--	--	13.5
Ash	151.6	--	26.7	32.7	30.5	27.3	11.7	18.1	--	--	--	4.6
Cottonwood	16.7	--	1.2	2.3	1.6	4.9	--	6.7	--	--	--	--
Basswood	3.1	--	--	--	--	3.1	--	--	--	--	--	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	316.6	--	58.4	78.1	66.6	49.5	23.8	40.2	--	--	--	--
Bay and magnolia	246.1	--	71.6	64.8	41.4	32.9	21.0	9.3	--	--	--	5.1
Elm	90.3	--	14.8	21.8	17.6	13.3	9.7	13.1	--	--	--	--
Black cherry	2.6	--	1.5	1.1	--	--	--	--	--	--	--	--
Sycamore	18.2	--	--	3.2	1.7	6.6	2.1	4.6	--	--	--	--
Hackberry	14.1	--	5.7	2.7	3.5	2.2	--	--	--	--	--	--
River birch	7.4	--	2.4	3.6	--	--	1.4	--	--	--	--	--
Other eastern hardwoods	22.9	--	6.1	6.1	5.7	2.2	--	2.8	--	--	--	--
Total hardwoods	6,490.0	--	1,223.7	1,442.7	998.6	898.2	523.8	1,118.1	--	--	--	284.9
All species	20,703.2	3,805.1	5,351.4	4,321.6	2,726.0	1,688.7	926.0	1,557.7	--	--	--	326.7

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark and Shumard oaks.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1970

Species	Net annual growth	Annual timber removals
- - <u>Million cubic feet</u> - -		
Softwood:		
Yellow pines	328.4	308.0
Cypress	6.4	3.4
Other eastern softwoods	(1/)	--
Total softwoods	334.8	311.4
Hardwood:		
Select white and red oaks	2.0	1.6
Other white and red oaks	24.1	14.6
Hickory	1.3	1.5
Hard maple	--	--
Sweetgum	12.4	9.6
Ash, walnut, and black cherry	2.2	0.8
Yellow-poplar	6.3	3.2
Tupelo and blackgum	17.3	20.7
Bay and magnolia	3.9	0.9
Other eastern hardwoods	10.0	4.1
Total hardwoods	79.5	57.0
All species	414.3	368.4

1/ Negligible.

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1970

Species	Net annual growth	Annual timber removals
- - Million board feet - -		
Softwood:		
Yellow pines	1,214.7	1,168.4
Cypress	26.6	11.7
Other eastern softwoods	0.1	--
Total softwoods	1,241.4	1,180.1
Hardwood:		
Select white and red oaks	5.5	5.3
Other white and red oaks	79.8	53.3
Hickory	3.8	7.7
Hard maple	--	--
Sweetgum	28.2	26.9
Ash, walnut, and black cherry	4.3	2.2
Yellow-poplar	29.1	9.2
Tupelo and blackgum	45.0	64.7
Bay and magnolia	9.6	2.8
Other eastern hardwoods	26.6	13.0
Total hardwoods	231.9	185.1
All species	1,473.3	1,365.2

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1970

Species	Growing stock	Sawtimber
Million cubic feet Million board feet		
Softwood:		
Yellow pines	19.4	50.4
Cypress	0.7	2.4
Other eastern softwoods	0.1	0.2
Total softwoods	20.2	53.0
Hardwood:		
Select white and red oaks	0.3	1.6
Other white and red oaks	3.5	14.6
Hickory	0.3	0.9
Hard maple	--	--
Sweetgum	1.5	4.2
Ash, walnut, and black cherry	0.4	0.4
Yellow-poplar	1.8	6.0
Tupelo and blackgum	3.5	12.1
Bay and magnolia	1.3	2.8
Other eastern hardwoods	2.0	3.2
Total hardwoods	14.6	45.8
All species	34.8	98.8

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1971

Ownership class	All live trees					Growing stock				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	432.3	284.5	11.9	93.2	42.7	410.1	283.3	11.0	81.1	34.7
Forest industry	2,069.2	1,035.1	148.4	539.4	346.3	1,871.8	1,029.8	135.1	436.5	270.4
Farmer	2,628.0	1,425.6	66.9	843.5	292.0	2,373.9	1,418.6	64.3	671.3	219.7
Miscellaneous private	2,883.3	1,568.0	179.9	696.3	439.1	2,614.1	1,561.9	168.3	562.6	321.3
All ownerships	8,012.8	4,313.2	407.1	2,172.4	1,120.1	7,269.9	4,293.6	378.7	1,751.5	846.1

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1971

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood	All species	Pine	Other : softwood	Soft : hardwood	Hard : hardwood
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	854.0	709.6	25.7	90.2	28.5	439.9	259.7	1.4	106.6	72.2
Forest industry	3,202.7	2,269.5	246.9	488.2	198.1	2,054.8	647.2	166.6	576.7	664.3
Farmer	4,657.5	3,517.1	115.0	805.1	220.3	2,329.3	1,156.1	29.3	735.9	408.0
Miscellaneous private	4,763.9	3,603.1	324.8	569.6	266.4	2,401.1	994.9	146.3	602.1	657.8
All ownerships	13,478.1	10,099.3	712.4	1,953.1	713.3	7,225.1	3,057.9	343.6	2,021.3	1,802.3

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1970

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	-	-	-	-	-	<u>Million cubic feet</u>				
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	24.6	21.3	0.1	2.1	1.1	22.6	19.3	0.1	2.8	0.4
Forest industry	105.9	83.5	2.3	11.1	9.0	110.6	97.6	0.5	6.1	6.4
Farmer	132.8	101.8	0.9	20.7	9.4	109.3	87.4	0.8	16.9	4.2
Miscellaneous private	151.0	121.8	3.1	16.0	10.1	125.9	103.7	2.0	12.8	7.4
All ownerships	414.3	328.4	6.4	49.9	29.6	368.4	308.0	3.4	38.6	18.4

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1970

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	-	-	-	-	-	Million board feet				
National Forest	--	--	--	--	--	--	--	--	--	--
Other public	95.2	84.9	0.6	5.7	4.0	81.0	69.4	--	10.3	1.3
Forest industry	362.0	289.0	9.2	32.9	30.9	401.5	360.2	2.2	14.4	24.7
Farmer	499.6	408.1	3.1	59.8	28.6	407.7	336.9	2.4	55.3	13.1
Miscellaneous private	516.5	432.7	13.8	39.3	30.7	475.0	401.9	7.1	36.6	29.4
All ownerships	1,473.3	1,214.7	26.7	137.7	94.2	1,365.2	1,168.4	11.7	116.6	68.5

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1971

Forest type, species group, and class of material	All ownerships	Ownership class										
		National Forest		Other public		Forest industry		Farmer		Misc. private		
		Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	
Pine types:												
Growing stock:												
Softwood	2,375	524	--	--	3,242	1,014	1,581	617	3,103	1,008	2,384	847
Hardwood	4	44	--	--	97	57	36	25	113	65	78	45
Total	2,444	868	--	--	3,339	1,071	1,617	642	3,276	1,073	2,462	892
Other timber:												
Softwood	--	5	--	--	--	4	--	5	--	5	--	5
Hardwood	--	15	--	--	--	16	--	9	--	23	--	14
Total	--	20	--	--	--	20	--	14	--	28	--	19
Oak-pine type:												
Growing stock:												
Softwood	2,056	601	--	--	2,919	716	2,141	626	2,172	605	1,781	566
Hardwood	665	298	--	--	615	348	651	272	873	374	498	243
Total	2,721	899	--	--	3,534	1,064	2,792	898	3,045	979	2,279	809
Other timber:												
Softwood	--	5	--	--	--	14	--	6	--	4	--	5
Hardwood	--	41	--	--	--	82	--	77	--	101	--	92
Total	--	46	--	--	--	96	--	83	--	105	--	97
Upland hardwood types:												
Growing stock:												
Softwood	55	124	--	--	--	--	455	106	443	118	623	147
Hardwood	1,742	625	--	--	--	--	2,168	711	1,413	538	1,865	681
Total	2,247	749	--	--	--	--	2,623	817	1,856	656	2,488	828
Other timber:												
Softwood	--	2	--	--	--	--	--	1	--	1	--	3
Hardwood	--	164	--	--	--	78	--	123	--	153	--	210
Total	--	166	--	--	--	78	--	124	--	154	--	213
Bottomland hardwood types:												
Growing stock:												
Softwood	1,109	313	--	--	1,215	251	1,303	343	988	283	1,062	324
Hardwood	2,980	1,160	--	--	4,522	1,567	3,420	1,225	2,803	1,123	2,642	1,102
Total	4,489	1,473	--	--	5,737	1,818	4,723	1,568	3,791	1,406	3,704	1,426
Other timber:												
Softwood	--	14	--	--	--	5	--	25	--	4	--	15
Hardwood	--	294	--	--	--	220	--	320	--	293	--	283
Total	--	308	--	--	--	225	--	345	--	297	--	298
All types:												
Growing stock:												
Softwood	1,910	628	--	--	2,848	841	1,515	530	2,181	671	1,889	645
Hardwood	872	345	--	--	3,51	331	3,77	322	982	403	781	329
Total	2,782	977	--	--	3,699	1,172	2,392	852	3,163	1,074	2,670	974
Other timber:												
Softwood	--	6	--	--	--	6	--	8	--	4	--	7
Hardwood	--	93	--	--	--	58	--	81	--	111	--	94
Total	--	99	--	--	--	64	--	89	--	115	--	101
All timber	2,782	1,076	--	--	3,699	1,236	2,392	941	3,163	1,189	2,670	1,075

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1952, 1960, and 1971

Land use class	Survey completion date			Change 1960-1971
	1952	1960 ^{2/}	1971	
- - - - - <u>Thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	5,541.6	5,702.3	5,321.1	-381.2
Hardwood types	2,085.2	2,242.7	2,119.5	-123.2
Total	7,626.8	7,945.0	7,440.6	-504.4
Noncommercial forest land:				
Productive-reserved	0.6	0.6	335.9	+335.3
Unproductive	49.8	22.4	22.9	+ 0.5
Total	50.4	23.0	358.8	+335.8
Nonforest land:				
Cropland	2,020.8	1,603.5	1,616.4	+ 12.9
Pasture and range	191.0	322.1	342.0	+ 19.9
Other	710.3	725.4	837.3	+111.9
Total	2,922.1	2,651.0	2,795.7	+144.7
All land ^{1/}	10,599.3	10,619.0	10,595.1	- 23.9

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revisions in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)									
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger	
			SAWTIMBER (in million board feet)									
Softwood	1952	15,125.4	--	--	4,166.2	4,646.1	2,890.7	1,614.5	826.0	442.8	539.1	
	1960	13,792.6	--	--	4,070.8	4,240.3	2,605.8	1,469.7	651.5	364.4	390.1	
	1971	14,213.2	--	--	3,805.1	4,127.7	2,878.9	1,727.4	790.5	402.2	481.4	
Hardwood	1952	6,267.5	--	--	--	1,107.2	1,396.0	941.7	955.3	516.9	1,350.4	
	1960	5,338.8	--	--	--	1,069.7	1,235.7	847.4	739.7	421.1	1,025.2	
	1971	6,490.0	--	--	--	1,223.7	1,442.7	998.6	898.2	523.8	1,403.0	
GROWING STOCK (in million cubic feet)												
Softwood	1952	4,506.8	471.0	779.9	1,063.3	998.3	563.4	297.6	153.3	82.1	97.9	
	1960	4,424.7	555.9	880.6	1,039.0	911.1	507.9	270.9	120.9	67.5	70.9	
	1971	4,672.3	711.4	914.6	971.2	886.8	561.1	318.5	146.7	74.5	87.5	
Hardwood	1952	2,391.1	232.4	307.6	365.1	350.0	351.2	216.5	180.4	93.2	294.7	
	1960	2,228.9	251.4	342.8	351.5	338.2	310.9	194.8	139.7	75.9	223.7	
	1971	2,597.6	271.7	360.1	416.2	386.9	363.0	229.5	169.6	94.4	306.2	
ALL LIVE TIMBER (in million cubic feet)												
Softwood	1952	4,550.9	477.7	787.9	1,071.0	1,002.1	567.9	298.3	154.3	84.1	107.6	
	1960	4,466.7	563.8	889.7	1,046.5	914.6	511.9	271.5	121.7	69.2	77.8	
	1971	4,720.3	721.8	925.0	978.6	890.2	565.5	319.2	147.7	76.3	96.0	
Hardwood	1952	3,025.0	329.8	411.5	452.0	421.6	408.2	256.5	214.0	121.0	410.4	
	1960	2,825.8	356.7	458.6	435.2	407.3	361.4	230.8	165.8	98.5	311.5	
	1971	3,292.5	385.6	481.4	515.5	466.0	421.9	271.9	201.2	122.6	426.4	

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Bellamy, Thomas R.

1971. Forest statistics for Southeast Georgia, 1971. Southeast. Forest Exp. Stn., USDA Forest Serv. Resour. Bull. SE-21, 34 pp.

Since 1960, acreage of commercial forest has declined by 6 percent, or about one-half million acres, in this 35-county area and now totals 7.4 million acres. During this period, volume of growing stock increased by 616 million cubic feet, to 7.3 billion cubic feet. Hardwoods accounted for almost two-thirds of the net gain. About 1 million acres have been artificially regenerated since 1960, over 70 percent of which is located south of the Altamaha River. In 1970, net growth of growing stock totaled 414 million cubic feet and exceeded removals by 11 percent. South of the Altamaha River removals of pine exceeded growth by 26 percent, and softwood inventory in this area has been reduced by 12 percent during the remeasurement period.

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Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina



FOREST STATISTICS for Central Georgia 1972

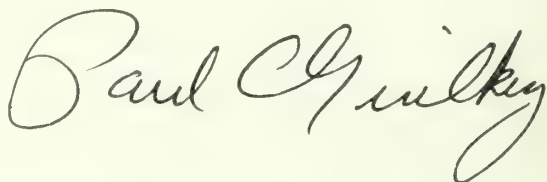
FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in Central Georgia. The survey was started in July 1971 and completed in March 1972. Findings of the previous surveys, completed in 1936, 1952, and 1961, provide the basis for measuring change that have occurred and trends that have developed over the past 36 years. In this report, the primary emphasis is on the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing, nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and ascertain rates of timber growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 49-county area covered by this report is one of five Survey Units in Georgia. Similar reports, USDA Forest Service Resource Bulletins SE-19 and SE-21, have been issued for Southwest and Southeast Georgia, and reports for North Central and North Georgia are planned as these Units are completed. The survey, when completed, will provide updated statistics on the timber resource for all of Georgia.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Georgia Forestry Commission and by forest industry in the collection of the field data.

A handwritten signature in cursive script, reading "Paul C. Guilkey". The signature is written in dark ink and is positioned above the printed name and title.

PAUL C. GUILKEY
Assistant Director

**Forest Statistics
for
Central Georgia
1972**

by

Robert A. Cathey, Associate Mensurationist

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HIGHLIGHTS

Since 1961 in Central Georgia--

- there has not been any significant change in the total area of commercial forest land. The diversion of 344,700 acres of commercial forests to other land uses was largely offset by the reversion of 250,000 acres of former agricultural lands to forest. More than 200,000 acres of the diversion was to pasture or other agricultural uses with most of the remaining loss attributed to urban development. Commercial forests currently occupy 7.3 million acres, or about 69 percent of the total land area in this 49-county area.
- the area of commercial forest land owned by wood-using industries has increased 26 percent and now totals over 1.3 million acres. Forest industry has another 200,000 acres under long-term lease, which means that 21 percent of the commercial forest land is managed by forest industry. Only 5 percent of the commercial forests are publicly owned, and most of these lands are in three large holdings: Fort Benning and Fort Gordon military reservations, and the Oconee National Forest. This means that 74 percent of the commercial forest land in Central Georgia is still under private, non-industrial ownership.
- almost one-half of the land classified as commercial forest has either been harvested, thinned, or artificially regenerated. Harvesting or some form of intermediate cutting has occurred on 2 out of every 5 acres over this 11-year period. Although there were no significant differences indicated in the proportion of stands cut into among the various ownership classes, more than one-half of the 335,000 acres artificially regenerated are owned or leased by forest industry.
- average basal area of all live trees 5.0 inches d.b.h. and larger has increased from 43 to 57 square feet per acre of commercial forest land, or by some 32 percent. There are also about 50 more sapling-sized trees per acre than in 1961. Even with this buildup in stocking, 1 out of every 6 acres--some 1.3 million acres--of commercial forest land is still poorly stocked.
- volume of softwood growing stock has increased from about 3.2 to 4.3 billion cubic feet, or by 37 percent. More than 70 percent of this increase was in the volume of loblolly pine, the predominant softwood species in the area, and another 21 percent was in the volume of slash pine. There was relatively little change in the

volume of shortleaf pine, longleaf pine, and other softwood species. It is also significant that the increase in softwood volume occurred across the range of diameter classes. The current inventory of growing stock includes 14.4 billion board feet of sawtimber, up by 40 percent.

- volume of hardwood growing stock has increased from about 2.6 to 3.4 billion cubic feet, or by 30 percent. More than 80 percent of this increase was in the volume of oak and sweetgum. Most of the remaining increase was in the volume of yellow-poplar and hickory. There was little change in the volume of blackgum, tupelo, maple, ash, and other bottomland hardwood species. Again, the increase in hardwood volume occurred across the range of diameters. The current inventory of hardwood growing stock includes 8.7 billion board feet of sawtimber, up by 26 percent.

In 1971--

- net growth of growing stock averaged 68 cubic feet per acre of commercial forest land and totaled 500 million cubic feet. This indicates a growth rate substantially higher than that found in either Southeast or Southwest Georgia. The higher growth rate in Central Georgia is attributed to differences in species composition and amount of ingrowth. The growth estimate for 1971 included slightly over 1.7 billion board feet of sawtimber.
- removals of growing stock totaled 290 million cubic feet, with pine accounting for over three-fourths of this total. Removals were roughly distributed proportionately to the area of commercial forest by ownership classes. The removal estimate for 1971 included 1.1 billion board feet of sawtimber.
- mortality of growing stock totaled 54 million cubic feet and reduced gross growth by almost 10 percent. Slightly over half of this mortality was softwood. This 1971 estimate of mortality included 139 million board feet of sawtimber.
- net growth exceeded removals by about 210 million cubic feet, or 73 percent. More than 61 percent of this growth over removals was southern yellow pine. The margin of growth over removals was much smaller for the soft-textured hardwood species than for the hard-textured species. By ownership class, about 7 percent of the apparent surplus growth was on publicly owned lands, 18 percent on lands owned or leased by forest industry, and 75 percent on other private lands.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the state and survey unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were:

1. Initial estimates of forest and nonforest areas were based on the classification of 36,412 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 2,636 of these 16-point clusters was checked on the ground, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 1,816 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5 inches d.b.h. were tallied on fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on the trees tallied at 1 out of every 20 sample locations in Central Georgia, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used on standing trees to obtain the additional measurements required to construct the volume equations. The same 5-percent subsample of plots used for the tree-volume study in Central Georgia also served as a quality control of field measurements.
4. Felled trees were measured at 34 active cutting operations to provide the utilization factors for product and species groups and to supplement the standing-tree volume study.

5. Estimates of growth, removals, and mortality were determined from the remeasurement of 1,864 permanent sample plots established in the third survey (1961).
6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest condition within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	0.95
Per billion cubic feet of growing stock - - - - -	5.16
Per billion cubic feet of net annual growth - - - - -	1.35
Per billion cubic feet of annual removals - - - - -	2.58

Sampling errors for county and unit totals,^{1/} in terms of
one standard error

County	Commercial	Cubic-foot volume of growing stock		
	forest area	Inventory	Growth	Removals
----- Sampling error ^{2/} -----				
Baldwin	2.12	13.17	13.71	22.65
Bibb	4.49	14.37	17.24	22.45
Bleckley	3.67	10.68	17.31	22.43
Burke	1.62	8.58	12.47	26.11
Butts	2.31	17.17	12.21	37.02
Calhoun	4.64	13.43	17.95	38.12
Chattahoochee	1.87	15.60	12.80	37.73
Clay	3.22	10.64	21.40	44.11
Columbia	2.58	10.64	11.59	27.11
Crawford	1.11	14.70	16.60	26.71
Dougherty	3.11	20.82	13.64	37.11
Glascock	4.60	23.42	17.79	44.28
Greene	1.85	11.26	10.35	20.42
Hancock	1.29	8.83	8.56	21.86
Harris	1.25	7.99	8.61	28.68
Houston	2.62	12.79	14.02	30.81
Jasper	1.34	8.73	9.48	26.61
Jefferson	2.24	8.84	9.61	37.05
Jones	2.52	10.19	9.80	24.96
Lamar	2.73	15.94	14.42	43.11
Lee	3.46	12.18	10.30	37.11
Lincoln	3.18	13.11	13.11	33.48
McDuffie	3.11	13.28	14.62	37.24
Macon	2.31	13.72	14.09	37.14
Marion	1.63	14.29	14.81	37.11
Monroe	1.33	8.84	9.02	28.29
Morgan	2.73	14.04	13.60	37.11
Muscogee	6.31	17.82	15.11	34.11
Peach	5.20	20.84	25.14	45.08
Pike	2.11	16.89	12.64	40.08
Pulaski	2.96	14.76	15.14	42.74
Putnam	2.10	12.51	11.46	23.10
Quitman	2.11	10.30	15.11	31.11
Randolph	1.41	8.96	7.34	29.67
Richmond	2.30	10.47	21.30	51.12
Schley	2.29	16.31	13.42	51.25
Stewart	1.35	10.00	9.11	21.25
Sumter	3.10	13.32	12.51	44.91
Talbot	1.10	9.16	8.75	30.82
Taliaferro	1.42	14.45	11.40	35.51
Taylor	1.74	15.78	18.41	40.57
Terrell	3.01	13.14	17.48	38.26
Wieggs	1.80	13.59	10.14	32.16
Upson	1.45	12.06	10.85	32.70
Warren	2.67	11.87	12.40	35.24
Washington	1.41	7.86	8.19	20.70
Webster	4.64	17.98	16.71	48.97
Wilkes	1.85	9.65	8.83	20.51
Wilkinson	2.48	10.23	10.15	22.85
Total	0.35	1.86	1.90	4.79

^{1/} Sampling error of breakdowns of county and unit totals
may be computed with the following formula:

$$e = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: e = Sampling error of the volume or area total in question.
SE = Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ^{1/}
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

^{1/} Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent
 Fully stocked--100-130 percent
 Medium stocked--60-99 percent
 Poorly stocked--16.7-59 percent
 Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.6	61.0	68.2	60.0
8	68.3	68.1	76.0	68.4
10	73.3	73.1	81.4	73.4
12	76.6	76.7	85.2	76.4
14	79.1	79.4	88.2	78.4
16	80.9	81.6	90.4	79.8
18	82.2	83.3	92.3	80.8
20	83.0	84.8	93.8	81.5
22	83.5	86.0	95.1	82.1
24+	83.8	87.6	98.7	83.1
Average	73.2	73.0	86.3	73.2

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in Central Georgia was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1962

County	All land ^{1/}	Forest land			Nonforest land ^{2/}	
		Total	Commercial forest	Unproductive forest		Productive-reserved
-----Thousand acres-----						
Baldwin	155.0	119.5	119.5	--	--	46.4
Bibb	162.6	93.2	92.8	--	0.5	69.4
Bleckley	140.1	70.1	70.1	--	--	70.0
Burke	332.5	306.6	306.6	--	--	225.9
Burns	114.5	83.2	82.9	--	--	36.5
Calhoun	185.0	93.8	93.8	--	--	91.2
Chattahoochee	161.9	144.9	144.9	--	--	17.0
Clay	144.0	83.4	83.4	--	--	50.6
Columbia	189.2	139.6	136.8	--	2.8	49.6
Crawford	201.6	168.9	168.9	--	--	32.7
Douderhty	209.9	98.2	98.0	--	0.2	111.7
Glascock	41.5	62.2	62.2	--	--	29.3
Greene	257.9	215.0	214.8	--	0.2	42.9
Hancock	309.0	273.5	273.5	--	--	35.5
Harris	300.7	244.8	239.9	--	4.9	55.8
Houston	242.8	136.9	136.9	--	--	105.9
Jasper	238.8	190.5	190.5	--	--	48.3
Jefferson	341.5	198.0	198.0	--	--	143.5
Jones	257.3	223.2	223.2	--	--	34.1
Lamar	115.8	76.5	76.5	--	--	40.3
Lee	229.7	201.5	201.5	--	0.4	128.9
Lincoln	135.4	103.5	103.1	--	0.4	31.9
McDuffie	165.0	113.9	113.9	--	--	51.1
Macon	257.9	143.1	142.7	--	0.4	114.8
Marion	273.6	184.1	184.1	--	--	89.5
Monroe	255.3	211.6	211.2	--	0.4	43.7
Morgan	228.4	139.2	133.8	--	5.4	89.2
Muscogee	141.2	95.5	95.5	--	--	45.7
Peach	96.6	41.2	41.2	--	--	55.4
Pike	147.2	88.7	88.7	--	--	58.5
Pulaski	162.6	87.5	87.5	--	(3/)	75.1
Putnam	218.9	178.1	178.1	--	--	40.8
Quitman	102.8	82.6	82.6	--	--	20.2
Randolph	278.8	180.7	180.7	--	--	98.1
Richmond	267.0	137.4	137.4	--	--	129.6
Schley	103.7	71.2	71.2	--	--	32.5
Stewart	295.9	241.0	234.0	--	1.1	54.9
Sumter	312.2	141.4	141.4	--	--	170.8
Talbot	249.6	223.6	223.6	--	--	26.0
Taliaferro	124.8	105.6	104.5	--	1.1	19.3
Taylor	257.8	189.6	189.6	--	--	68.2
Terrell	210.6	97.8	97.8	--	--	112.8
Twiggs	233.6	189.8	189.8	--	--	43.8
Upson	213.7	162.9	162.9	--	--	50.8
Warren	181.4	132.4	132.4	--	--	49.0
Washington	431.3	302.0	301.5	--	0.5	129.3
Webster	124.8	94.3	94.3	--	--	30.5
Wilkes	301.1	238.0	238.0	--	--	63.1
Wilkinson	293.1	242.9	242.9	--	--	50.2
Total	10,550.6	7,340.5	7,321.2	--	18.6	3,210.1

1/ From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

2/ Includes 83,200 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

3/ Less than 50 acres.

Table 2.--Area of commercial forest land, by ownership class and county, 1972

County	All ownerships	Ownership class								
		National	Miscellaneous	State	County and municipal	Forest industry ^{2/}	Farmer	Miscellaneous private		
		Forest	Federal					Corporate	Individual	
----- Thousand acres -----										
Baldwin	119.5	--	--	5.1	(1/)	15.5	27.7	--	71.2	
Bibb	92.8	--	--	--	0.2	--	25.3	12.6	54.7	
Bleckley	70.1	--	--	--	(1/)	--	37.8	3.4	6.9	
Burke	306.6	--	--	0.2	0.7	66.3	192.3	7.9	39.2	
Butts	82.9	--	--	0.7	(1/)	11.9	33.6	--	36.7	
Calhoun	43.8	--	--	--	0.1	8.7	71.6	--	13.4	
Chattahoochee	144.9	--	84.7	--	--	8.3	--	--	51.9	
Clay	83.4	--	2.3	--	(1/)	6.9	26.2	4.4	43.6	
Columbia	136.8	--	11.0	--	--	16.6	42.7	9.5	57.0	
Crawford	168.9	--	--	--	(1/)	56.3	34.6	26.0	52.0	
Dougherty	98.0	--	1.9	0.1	(1/)	15.3	29.7	--	51.0	
Glascock	62.2	--	--	--	--	13.1	24.6	--	24.5	
Greene	214.8	22.7	--	0.6	(1/)	50.5	47.0	3.9	90.1	
Hancock	273.5	--	--	--	0.1	80.3	42.9	--	150.2	
Harris	239.9	--	--	--	(1/)	16.0	38.8	21.5	163.6	
Houston	126.9	--	2.3	--	0.1	52.3	28.8	8.2	45.2	
Jasper	146.5	25.7	5.5	--	0.1	23.5	52.8	--	82.9	
Jefferson	198.0	--	4.0	--	--	36.2	112.2	--	45.6	
Jones	223.2	21.0	26.0	--	0.2	44.5	37.0	16.4	78.1	
Lamar	75.5	--	--	--	0.4	7.1	26.4	--	41.6	
Lee	99.4	--	--	--	0.1	2.1	58.3	7.8	31.1	
Lincoln	103.1	--	13.5	--	--	9.8	22.8	7.6	49.4	
McDuffie	113.9	--	14.5	--	(1/)	12.2	38.8	--	48.4	
Macon	142.7	--	--	--	0.2	16.6	71.9	3.6	50.4	
Marion	134.1	--	0.5	--	(1/)	41.6	58.5	33.4	50.1	
Monroe	211.2	--	--	--	0.1	62.6	63.0	--	85.5	
Morgan	133.6	0.4	--	0.2	0.1	17.8	75.5	4.0	35.8	
Muscogee	41.5	--	40.0	--	0.5	(1/)	--	--	55.0	
Peach	41.2	--	0.1	0.2	--	2.5	24.0	--	14.4	
Pike	88.7	--	--	--	0.2	6.9	26.0	--	55.6	
Pulaski	87.5	--	--	--	0.1	10.3	64.9	--	12.2	
Putnam	178.1	32.4	--	13.3	0.2	47.3	56.6	4.7	23.6	
Quitman	82.6	--	0.7	--	--	13.3	36.3	8.1	24.2	
Randolph	180.7	--	--	--	0.2	33.4	67.6	--	79.5	
Richmond	137.4	--	35.0	2.2	--	13.6	14.4	3.6	68.6	
Schley	71.2	--	--	--	--	10.7	30.2	--	30.3	
Stewart	239.9	--	0.4	--	0.1	71.6	47.9	28.8	91.1	
Sumter	141.4	--	0.2	0.1	0.3	15.2	67.0	4.2	54.4	
Talbot	223.6	--	--	--	--	47.9	41.6	9.3	124.8	
Taliaferro	194.5	--	--	--	--	31.6	31.2	3.5	38.2	
Taylor	189.6	--	--	--	--	26.5	45.1	10.4	107.6	
Terrell	97.3	--	--	--	0.2	5.3	57.7	--	34.6	
Twiggs	189.8	--	--	--	--	48.8	43.1	23.5	74.4	
Upson	162.9	--	--	--	(1/)	30.4	23.4	7.8	101.3	
Warren	132.4	--	0.1	--	(1/)	31.2	29.5	8.4	63.2	
Washington	301.5	--	--	--	0.1	38.8	109.4	17.5	135.7	
Webster	94.3	--	--	--	--	29.2	51.2	--	13.9	
Wilkes	238.0	--	4.0	0.2	0.2	61.4	108.6	--	62.7	
Wilkinson	242.9	--	--	0.3	0.3	45.2	65.7	8.2	123.2	
Total	7,321.9	102.2	247.6	23.2	4.8	1,335.1	2,362.2	308.2	2,938.6	

^{1/} Less than 50 acres.^{2/} Not including 199,800 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1972

County	All type groups	Forest-type groups					
		Longleaf- slash	Loblolly- shortleaf	Oak- pine	Oak- hickory	Oak-gum- cypress	Elm-ash- cottonwood
----- Thousand acres -----							
Baldwin	119.5	4.0	83.9	15.8	11.9	--	3.9
Bibb	92.8	--	50.5	12.6	12.8	16.9	--
Bleckley	70.1	19.2	3.4	10.3	17.9	19.3	--
Burke	306.6	65.3	35.3	51.2	95.1	44.8	14.9
Butts	82.9	--	42.6	18.3	15.3	--	6.7
Calhoun	93.8	13.4	17.9	4.5	31.3	13.3	13.4
Chattahoochee	144.9	19.4	51.0	31.6	30.8	9.1	3.0
Clay	83.4	20.0	13.1	9.9	36.0	4.4	--
Columbia	136.8	--	72.8	27.1	27.4	--	9.5
Crawford	168.9	12.2	82.8	46.0	20.0	7.9	--
Dougherty	98.0	25.8	19.5	15.3	11.0	2.6	23.8
Glascok	62.2	8.2	20.5	4.3	16.9	8.2	4.1
Greene	214.8	--	144.5	35.1	11.8	11.7	11.7
Hancock	273.5	6.7	156.6	35.8	54.8	19.6	--
Harris	239.9	8.6	123.2	48.4	48.4	11.3	--
Houston	136.9	16.2	20.4	8.2	65.3	20.4	6.4
Jasper	190.5	--	105.2	42.0	35.8	7.5	--
Jefferson	198.0	25.0	38.8	35.1	70.8	28.3	--
Jones	223.2	--	175.3	22.9	8.2	4.1	12.7
Lamar	75.5	--	33.9	15.1	18.9	--	7.6
Lee	99.4	19.4	2.1	7.8	42.8	27.3	--
Lincoln	103.1	--	70.0	15.2	17.9	--	--
McDuffie	113.9	4.8	53.8	21.4	19.4	14.5	--
Macon	142.7	7.2	21.6	19.9	57.6	36.4	--
Marion	184.1	6.0	38.7	35.6	85.3	14.3	4.2
Monroe	211.2	4.6	108.9	45.4	48.9	--	3.4
Morgan	133.8	--	64.3	27.8	33.3	8.4	--
Muscogee	95.5	--	55.2	18.5	11.8	3.3	6.7
Peach	41.2	4.8	5.0	14.4	12.2	4.8	--
Pike	88.7	3.7	36.6	14.9	26.1	3.7	3.7
Pulaski	87.5	20.3	4.1	4.0	34.7	24.4	--
Putnam	178.1	--	103.7	35.5	38.9	--	--
Quitman	82.6	4.0	41.1	8.1	17.3	4.0	8.1
Randolph	180.7	19.9	46.1	24.7	53.5	24.6	11.9
Richmond	137.4	21.2	29.2	21.7	36.7	18.0	10.6
Schley	71.2	7.6	33.4	22.7	7.5	--	--
Stewart	239.9	15.1	115.8	64.4	35.0	4.8	4.8
Sumter	141.4	33.6	37.8	10.6	21.1	34.1	4.2
Talbot	223.6	--	144.3	34.1	31.3	9.3	4.6
Taliaferro	104.5	--	61.2	30.0	9.8	3.5	--
Taylor	189.6	42.6	35.7	11.3	66.9	33.1	--
Terrell	97.8	11.5	24.7	3.9	11.5	42.3	3.9
Twiggs	189.8	--	71.1	27.6	66.9	8.1	16.1
Upson	162.9	--	70.4	35.1	49.6	3.9	3.9
Warren	132.4	8.4	65.1	11.5	40.1	3.1	4.2
Washington	301.5	29.4	104.0	51.1	90.7	21.9	4.4
Webster	94.3	9.3	29.6	15.6	31.5	--	8.3
Wilkes	238.0	4.2	148.1	42.9	30.3	12.5	--
Wilkinson	242.9	12.9	57.5	57.5	53.4	49.3	12.3
Total	7,321.9	534.5	2,970.3	1,222.7	1,722.4	639.0	233.0

Table 4.--Area of commercial forest land, by stand-size class
and county, 1972

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling- seedling	
- - - - - Thousand acres - - - - -					
Baldwin	119.5	38.0	48.6	32.9	--
Bibb	92.8	54.7	16.8	21.3	--
Bleckley	70.1	17.9	48.8	3.4	--
Burke	306.6	98.3	139.8	64.6	3.9
Butts	82.9	37.1	24.4	21.4	--
Calhoun	93.8	44.6	31.2	18.0	--
Chattahoochee	144.9	78.2	35.1	25.5	6.1
Clay	83.4	13.1	41.8	23.0	5.5
Columbia	136.8	79.0	45.0	8.1	4.7
Crawford	168.9	31.4	45.2	88.0	4.3
Dougherty	98.0	50.3	28.1	19.6	--
Glascock	62.2	12.5	28.7	21.0	--
Greene	214.8	53.3	74.3	87.2	--
Hancock	273.5	85.5	111.1	76.9	--
Harris	239.9	69.9	98.4	67.3	4.3
Houston	136.9	42.9	61.3	32.7	--
Jasper	190.5	94.5	63.1	28.2	4.7
Jefferson	198.0	74.6	87.9	32.0	3.5
Jones	223.2	104.9	69.2	49.1	--
Lamar	75.5	26.0	34.0	11.7	3.8
Lee	99.4	23.5	52.6	19.4	3.9
Lincoln	103.1	41.2	48.9	13.0	--
McDuffie	113.9	56.5	37.2	15.3	4.9
Macon	142.7	66.7	37.9	27.3	10.8
Marion	184.1	32.8	82.3	25.5	43.5
Monroe	211.2	71.9	105.4	33.9	--
Morgan	133.8	56.8	48.7	28.3	--
Muscogee	95.5	39.6	26.9	25.6	3.4
Peach	41.2	9.6	7.6	19.2	4.8
Pike	88.7	29.9	44.0	14.8	--
Pulaski	87.5	42.8	24.4	20.3	--
Putnam	178.1	66.5	44.4	58.6	8.6
Quitman	82.6	20.6	33.4	28.6	--
Randolph	180.7	69.9	68.6	42.2	--
Richmond	137.4	42.5	35.4	42.3	17.2
Schley	71.2	26.5	29.6	15.1	--
Stewart	239.9	67.9	105.6	66.4	--
Sumter	141.4	33.6	76.3	31.5	--
Talbot	223.6	66.8	102.4	51.2	3.2
Taliaferro	104.5	43.3	34.1	27.1	--
Taylor	189.6	29.6	60.9	46.1	53.0
Terrell	97.8	40.1	50.0	7.7	--
Twiggs	189.8	67.3	59.0	47.2	16.3
Upson	162.9	42.3	72.0	44.7	3.9
Warren	132.4	35.7	62.1	34.6	--
Washington	301.5	93.6	127.3	80.6	--
Webster	94.3	37.9	23.2	33.2	--
Wilkes	238.0	110.2	57.2	65.9	4.7
Wilkinson	242.9	86.8	86.3	69.8	--
Total	7,321.9	2,559.1	2,776.5	1,767.3	219.0

Table 5.--Area of commercial forest land, by site class and county, 1972

County	All classes	Site class				
		1	2	3	4	5
----- Thousand acres -----						
Baldwin	119.5	--	9.1	53.8	48.7	7.9
Bibb	92.8	4.2	--	25.3	59.1	4.2
Bleckley	70.1	--	8.9	28.2	26.1	6.9
Burke	306.6	--	--	59.7	231.2	15.7
Butts	82.9	--	--	9.2	67.6	6.1
Calhoun	93.8	--	--	8.9	84.9	--
Chattahoochee	144.9	--	--	29.8	106.0	9.1
Clay	83.4	--	--	4.4	79.0	--
Columbia	136.8	--	--	47.2	89.6	--
Crawford	168.9	--	11.4	36.5	113.1	7.9
Dougherty	98.0	--	--	13.6	80.2	4.2
Glascock	62.2	--	--	20.7	41.5	--
Greene	214.8	4.5	15.7	59.9	134.7	--
Hancock	273.5	--	4.3	88.7	171.9	8.6
Harris	239.9	--	--	25.8	201.1	13.0
Houston	136.9	--	4.0	57.2	71.6	4.1
Jasper	190.5	--	3.8	72.2	104.1	10.4
Jefferson	198.0	--	3.5	63.8	123.7	7.0
Jones	223.2	--	12.3	121.9	84.6	4.4
Lamar	75.5	--	--	3.8	71.7	--
Lee	99.4	--	3.9	15.5	72.2	7.8
Lincoln	103.1	--	--	55.3	47.8	--
McDuffie	113.9	--	4.9	22.6	81.6	4.8
Macon	142.7	5.6	7.2	55.9	66.8	7.2
Marion	184.1	--	--	8.4	165.6	10.1
Monroe	211.2	--	4.5	22.9	174.8	9.0
Morgan	133.8	--	4.0	48.9	72.9	8.0
Muscogee	95.5	--	--	4.2	87.9	3.4
Peach	41.2	--	2.8	9.6	28.8	--
Pike	88.7	--	--	3.7	77.6	7.4
Pulaski	87.5	--	--	26.6	52.8	8.1
Putnam	178.1	--	12.1	108.1	53.2	4.7
Quitman	82.6	--	4.0	24.2	54.4	--
Randolph	180.7	--	--	29.4	151.3	--
Richmond	137.4	--	3.6	44.1	78.9	10.8
Schley	71.2	--	--	18.9	52.3	--
Stewart	239.9	--	--	100.2	139.7	--
Sumter	141.4	--	4.2	23.3	109.7	4.2
Talbot	223.6	--	--	7.8	206.6	9.2
Taliaferro	104.5	--	3.5	40.4	60.6	--
Taylor	189.6	--	13.9	60.9	114.8	--
Terrell	97.8	--	3.8	30.8	63.2	--
Twiggs	189.8	--	3.9	51.6	118.6	15.7
Upson	162.9	--	7.2	19.5	113.3	22.9
Warren	132.4	--	--	33.7	98.7	--
Washington	301.5	--	4.4	160.7	136.4	--
Webster	94.3	--	--	34.2	60.1	--
Wilkes	238.0	4.2	--	124.2	109.6	--
Wilkinson	242.9	--	12.3	74.5	139.7	16.4
Total	7,321.9	18.5	173.2	2,090.7	4,780.3	259.2

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1972

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
----- Thousand acres -----						
Faldwin	119.5	--	43.2	72.4	3.9	--
Bibb	92.8	--	12.6	63.1	17.1	--
Bleckley	70.1	--	35.1	35.0	--	--
Burke	306.6	--	44.1	202.1	56.5	3.9
Butts	82.9	6.1	30.4	36.7	9.7	--
Calhoun	93.8	4.4	13.3	71.7	4.4	--
Chattahoochee	144.9	3.0	6.0	80.9	48.9	6.1
Clay	83.4	6.9	17.5	39.3	14.2	5.5
Columbia	136.8	9.5	74.2	38.8	9.5	4.8
Crawford	168.9	4.3	25.2	94.2	40.9	4.3
Dougherty	98.0	7.7	5.2	59.7	25.4	--
Glascok	62.2	--	12.8	36.8	12.6	--
Greene	214.8	--	72.9	126.3	15.6	--
Hancock	273.5	3.4	92.7	156.9	20.5	--
Harris	239.9	--	98.4	119.9	17.3	4.3
Houston	136.9	8.1	32.5	88.1	8.2	--
Jasper	190.5	--	58.2	120.1	7.5	4.7
Jefferson	198.0	--	50.0	112.9	31.6	3.5
Jones	223.2	7.0	55.6	140.6	20.0	--
Lamar	75.5	--	33.8	30.4	7.5	3.8
Lee	99.4	2.0	7.8	66.1	19.6	3.9
Lincoln	103.1	10.5	40.4	46.7	5.5	--
McDuffie	113.9	5.7	36.0	57.7	9.7	4.8
Macon	142.7	--	10.8	81.5	39.6	10.8
Marion	184.1	--	16.1	74.5	49.9	43.6
Monroe	211.2	11.4	91.9	94.4	13.5	--
Morgan	133.8	8.4	32.5	76.5	16.4	--
Muscogee	95.5	--	20.3	53.0	18.9	3.3
Peach	41.2	--	--	26.8	9.6	4.8
Pike	88.7	3.7	22.3	59.0	3.7	--
Pulaski	87.5	--	8.1	67.2	12.2	--
Putnam	178.1	4.3	59.2	87.5	18.5	8.6
Quitman	82.6	--	28.6	41.9	12.1	--
Randolph	180.7	--	33.4	111.5	35.8	--
Richmond	137.4	10.6	22.8	42.1	44.7	17.2
Schley	71.2	--	18.9	41.0	11.3	--
Stewart	239.9	7.6	48.0	148.8	35.5	--
Sumter	141.4	--	37.8	74.3	29.3	--
Talbot	223.6	7.8	89.9	102.4	20.3	3.2
Taliaferro	104.5	6.9	66.9	23.7	7.0	--
Taylor	189.6	--	35.6	53.0	48.0	53.0
Terrell	97.8	3.8	36.2	46.2	11.6	--
Twiggs	189.8	4.1	55.1	98.7	15.6	16.3
Upton	162.9	--	40.8	87.0	31.2	3.9
Warren	132.4	--	45.2	70.3	16.9	--
Washington	301.5	4.4	65.9	184.5	46.7	--
Webster	94.3	--	17.6	46.1	30.6	--
Wilkes	238.0	--	66.6	140.5	26.2	4.7
Wilkinson	242.9	4.1	74.5	139.7	24.6	--
Total	7,321.9	155.7	1,942.9	3,968.5	1,035.8	219.0

^{1/} See stocking standards on page 12.

Table 1.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1972

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
----- Million board feet -----					----- Million cubic feet ^{1/} -----					
Baldwin	246.1	233.7	--	16.7	45.3	135.6	135.3	--	13.5	18.7
Bibb	222.5	255.2	--	69.1	60.1	111.2	64.7	0.2	27.8	18.5
Blackley	236.7	83.6	1.6	51.1	94.5	88.4	36.6	0.4	24.8	32.6
Burke	649.0	241.2	55.1	237.8	134.3	259.3	131.1	7.8	91.6	66.8
Butts	321.0	144.2	--	55.5	38.2	101.1	58.6	--	27.0	15.6
Calhoun	292.1	86.1	10.7	70.2	96.1	134.4	26.8	4.1	38.8	34.1
Chattahoochee	670.2	529.9	--	86.9	52.4	154.5	137.2	--	32.2	14.4
Clay	172.0	70.2	--	35.3	56.4	54.5	27.1	--	13.8	18.6
Columbia	676.9	510.7	--	81.6	84.6	219.8	143.1	0.1	42.8	24.8
Crawford	436.1	340.1	--	14.2	16.8	129.8	33.5	--	28.3	8.0
Dougherty	388.0	144.1	24.1	22.0	76.0	121.9	57.1	25.5	10.9	28.4
Glascok	103.0	30.4	--	45.1	28.8	51.1	21.1	--	18.4	12.4
Greene	47.1	600.4	--	52.1	60.7	226.4	164.7	0.2	32.6	28.9
Hancock	334.5	629.4	--	92.8	68.3	271.4	194.3	--	44.5	32.6
Harris	709.5	484.6	--	126.7	98.2	231.8	144.3	--	48.7	38.8
Houston	582.6	179.4	--	128.3	267.4	190.8	62.9	1.7	56.6	69.6
Jasper	42.1	707.9	3.8	96.0	116.0	248.2	165.9	1.2	38.5	42.6
Jefferson	224.1	206.5	23.8	203.8	55.2	135.1	69.7	8.0	71.1	44.9
Jones	821.5	137.5	--	55.1	63.3	264.3	208.9	--	33.1	21.7
Lamar	218.7	100.7	--	55.2	58.2	83.9	39.6	--	22.1	22.2
Lee	269.8	89.4	5.0	55.6	119.7	97.7	36.9	0.9	18.3	41.6
Lincoln	420.0	347.2	--	30.6	42.2	145.1	100.7	--	14.2	20.1
McDuffie	339.5	242.9	--	57.2	23.4	132.2	90.2	--	25.4	16.1
Macon	560.1	203.6	--	166.3	13.2	151.1	51.2	--	59.5	48.6
Marion	301.6	125.5	--	109.9	66.2	77.1	38.2	--	35.4	25.4
Monroe	244.5	496.3	--	106.3	177.1	258.9	156.9	0.1	48.1	53.8
Morgan	460.2	340.8	--	75.1	44.3	161.8	100.4	--	36.2	25.2
Muscogee	343.8	276.7	--	62.7	54.2	75.1	62.2	--	22.4	11.0
Peach	114.6	84.6	--	30.0	--	34.1	17.9	--	14.6	11.1
Pike	385.6	182.2	--	126.6	76.8	120.3	50.5	0.1	40.1	29.6
Pulaski	265.6	44.3	24.5	85.3	101.5	85.8	23.7	6.0	27.2	28.9
Putnam	770.4	623.6	1.9	74.8	70.1	248.9	181.8	0.6	42.3	34.2
Quitman	240.5	138.6	--	55.5	42.4	86.2	47.4	--	24.6	14.2
Randolph	518.1	247.9	--	155.7	11.1	173.9	74.2	--	59.1	40.0
Richmond	351.1	148.7	16.0	152.2	34.1	126.4	52.1	3.4	55.4	14.7
Schley	228.7	130.4	2.2	21.3	25.8	69.2	48.1	0.4	11.2	9.5
Stewart	645.5	462.7	--	66.8	116.0	235.0	150.6	0.3	38.1	46.0
Sumter	306.6	153.4	--	88.8	64.4	128.0	61.4	--	40.8	25.8
Talbot	564.2	416.0	2.0	35.2	52.4	200.2	132.4	0.6	37.1	30.1
Taliaferro	366.7	31.1	--	29.4	29.6	143.1	106.7	--	10.4	17.1
Taylor	291.1	134.3	--	110.6	41.2	115.9	54.0	0.2	41.9	16.8
Terrell	270.3	61.4	12.3	156.1	40.5	114.3	29.6	2.8	62.9	18.0
Twiggs	738.8	286.1	--	238.6	214.1	214.9	79.8	--	70.8	66.3
Upson	448.5	238.6	0.7	84.3	124.9	147.7	81.3	0.2	30.8	38.4
Warren	282.4	196.8	--	32.0	53.6	112.6	66.5	--	20.1	26.0
Washington	636.7	357.8	1.1	127.9	147.9	268.1	133.5	1.1	63.4	70.1
Webster	250.5	134.1	--	55.5	65.9	74.4	36.1	--	18.0	25.3
Wilkes	862.1	653.1	0.8	106.1	102.1	264.8	178.5	0.8	50.2	37.3
Wilkinson	950.3	310.5	98.7	279.8	253.3	311.4	94.9	19.4	116.8	80.3
Total	23,074.1	14,037.8	346.1	4,616.6	4,013.6	7,667.9	4,221.4	86.1	1,848.9	1,511.5

^{1/} Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
----- Million board feet -----						----- Million cubic feet -----				
Adair	27.4	34.5	--	0.7	4.2	10.1	8.6	--	0.5	1.0
Alfalfa	27.1	20.7	--	2.6	3.8	6.7	5.0	(1/)	1.0	0.7
Anderson	17.3	9.9	(1/)	2.3	5.1	7.2	4.9	(1/)	0.2	1.4
Ashe	--	27.1	1.0	11.2	9.4	19.7	12.9	0.2	3.2	3.4
Batts	20.3	15.6	--	3.0	1.7	6.8	4.9	--	1.1	0.8
Calhoun	19.1	9.9	0.8	3.3	5.1	5.4	2.4	0.1	1.5	1.4
Chattahoochee	--	29.1	--	2.5	2.5	6.6	5.2	--	0.8	0.6
Clay	14.7	9.9	--	2.2	2.6	3.8	2.6	--	0.4	0.8
Columbia	53.5	44.7	--	4.3	4.5	13.7	10.3	(1/)	1.9	1.5
Crawford	28.0	22.7	--	4.3	1.0	10.3	8.6	--	1.2	0.5
Dougherty	21.7	15.2	1.6	0.8	4.1	7.2	5.1	0.4	0.3	1.4
Duval	9.1	5.5	--	1.7	1.9	3.7	2.2	--	0.6	0.9
Greene	--	50.8	--	4.3	4.3	15.9	12.5	(1/)	1.8	1.6
Hancock	--	66.2	--	5.7	4.3	19.6	15.4	--	2.0	2.2
Harris	--	42.3	--	8.8	6.1	16.5	12.0	--	2.3	2.2
Houston	--	20.3	0.2	5.7	9.2	9.6	5.0	(1/)	2.1	2.5
Jasper	67.6	53.1	0.2	7.7	6.6	14.9	10.8	0.2	1.7	2.2
Jefferson	29.9	17.1	0.9	6.8	5.1	12.6	6.3	0.2	3.1	3.0
Jones	--	58.0	--	4.1	2.4	17.3	14.8	--	1.5	1.0
Madison	20.5	14.5	--	2.8	3.2	6.3	4.6	--	0.9	0.8
Lee	16.4	8.5	0.2	2.1	5.6	8.0	4.6	(1/)	0.6	2.8
Lincoln	34.6	30.8	--	2.1	1.7	10.6	8.6	--	0.6	1.4
Lumpkin	--	26.9	--	3.1	2.4	10.2	8.0	--	1.2	1.0
Macon	28.1	16.2	--	4.9	7.0	7.3	3.8	--	1.6	1.9
Marion	17.6	10.6	--	4.1	2.9	6.7	3.8	--	1.5	1.4
Monroe	64.0	50.5	--	5.1	8.4	18.4	13.6	(1/)	2.2	2.6
Morgan	36.3	26.8	--	4.9	4.6	9.7	6.7	--	1.6	1.4
Muscogee	23.7	18.4	--	3.8	1.5	4.7	3.6	--	0.7	0.4
Peach	7.6	5.2	--	1.6	0.8	1.9	1.3	--	0.4	0.2
Perdrieux	25.6	16.9	--	5.5	3.2	6.3	3.3	(1/)	1.4	1.6
Pulaski	16.7	7.9	0.8	3.6	4.4	4.5	2.3	0.2	1.0	1.0
Putnam	55.9	48.5	0.1	3.8	3.5	16.3	13.1	(1/)	1.4	1.8
Quitman	19.4	14.0	--	3.4	2.0	5.7	3.7	--	1.0	1.0
Randolph	32.4	21.1	--	4.9	6.4	8.6	5.4	--	1.6	1.6
Richmond	20.0	12.4	0.6	5.2	1.8	8.0	5.3	0.1	1.9	0.7
Schley	17.3	14.8	0.1	1.0	1.4	5.4	4.4	(1/)	0.4	0.6
Stewart	--	4.4	0.2	4.6	7.0	15.7	11.8	(1/)	1.6	2.3
Sumter	24.8	17.0	--	4.8	3.0	8.6	5.5	--	1.9	1.2
Tallot	57.3	46.4	0.1	5.7	5.1	15.4	11.7	0.2	1.9	1.6
Taliaferro	32.1	27.6	--	2.2	2.3	11.9	9.1	--	1.5	1.3
Taylor	22.8	15.0	--	5.0	2.8	8.1	5.5	--	1.6	1.0
Terrell	16.7	7.4	0.4	6.6	2.3	8.3	4.7	0.1	2.4	1.1
Twiggs	37.7	21.5	--	7.6	8.6	9.7	5.0	--	2.1	2.6
Upson	33.7	23.0	(1/)	5.8	4.9	9.3	6.5	(1/)	1.4	1.4
Warren	27.1	21.7	--	1.9	3.5	8.4	6.0	--	1.1	1.3
Washington	58.3	41.1	0.1	7.5	9.6	20.0	13.6	(1/)	2.3	4.1
Webster	17.1	10.6	--	3.0	3.5	4.6	2.7	--	0.7	1.2
Wilkes	--	62.0	0.1	4.8	6.1	17.4	13.0	0.1	2.5	1.8
Wilkinson	54.5	27.6	1.7	14.4	10.8	16.7	9.0	0.3	4.1	3.3
Total	1,702.3	1,261.2	9.1	217.8	214.2	500.3	349.7	2.1	73.6	75.5

1/ Less than 50,000 board feet or cubic feet.

Table 9.--Annual removals of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
----- Million board feet -----					----- Million cubic feet -----					
Baldwin	20.1	19.0	--	0.4	0.7	5.3	5.9	--	0.2	0.2
Bibb	21.1	18.0	--	1.4	1.7	6.9	5.8	--	0.6	0.5
Bleckley	5.8	3.6	--	0.9	1.3	1.4	0.8	--	0.3	0.3
Burke	38.4	26.2	--	7.4	4.8	8.3	5.6	--	1.6	1.1
Butts	4.8	4.8	--	--	--	1.4	1.4	--	--	--
Calhoun	13.0	3.5	--	5.2	4.3	3.2	0.6	--	1.6	1.0
Chattahoochee	27.0	23.7	--	3.3	--	6.5	4.7	--	0.8	--
Clay	1.4	1.4	--	--	--	0.9	0.6	--	0.2	0.1
Columbia	16.3	15.3	--	--	1.0	5.2	4.8	--	--	0.4
Crawford	25.3	24.5	--	0.3	0.5	6.2	6.0	--	0.1	0.1
Dougherty	29.6	15.0	--	6.1	8.5	6.8	3.8	--	1.3	1.7
Glascok	15.0	10.2	--	--	4.8	3.2	2.1	--	(1/)	1.1
Greene	37.6	28.9	--	2.9	5.8	13.5	7.1	--	1.4	2.2
Hancock	34.4	27.7	--	4.0	2.7	10.3	8.4	--	1.4	0.5
Harris	34.0	29.3	--	3.0	1.7	8.5	7.5	--	0.7	0.3
Houston	29.6	12.8	--	8.9	7.0	7.5	3.5	--	2.5	1.5
Jasper	47.2	35.4	--	5.1	6.7	11.0	8.6	--	1.1	1.3
Jefferson	27.4	14.8	--	8.0	4.6	5.7	2.9	0.1	1.7	1.0
Jones	28.8	27.2	--	0.9	0.7	1.3	7.0	--	0.2	0.1
Lamar	6.9	3.8	--	--	3.1	2.1	1.4	--	--	0.7
Lee	2.6	--	--	0.7	1.9	0.7	0.1	--	0.2	0.4
Lincoln	20.7	19.1	--	0.9	0.7	5.1	4.6	--	0.2	0.3
McDuffie	15.8	14.0	--	1.8	--	3.8	2.8	--	0.5	0.5
Macon	6.5	5.6	--	--	0.9	1.4	1.2	--	--	0.2
Marion	18.5	8.9	--	7.0	2.6	4.4	2.1	--	1.5	0.8
Monroe	29.0	23.2	--	3.5	2.3	4.5	5.8	--	1.7	0.7
Morgan	21.3	16.2	--	3.0	2.1	6.6	5.3	--	0.7	0.6
Muscogee	15.7	12.3	--	2.3	1.1	4.0	3.1	--	0.7	0.2
Peach	12.3	10.8	--	0.8	0.7	3.0	2.4	--	0.5	0.1
Pike	28.8	27.5	--	1.3	--	6.2	5.8	--	0.3	0.1
Pulaski	9.7	5.0	--	4.7	--	2.0	0.9	--	1.1	(1/)
Putnam	40.9	33.7	--	4.7	2.5	10.9	8.9	--	1.4	0.6
Quitman	9.5	8.9	--	0.6	--	3.6	2.4	--	1.0	0.2
Randolph	16.2	10.4	--	4.0	1.8	4.7	2.9	--	1.4	0.4
Richmond	2.6	2.6	--	--	--	1.1	1.1	--	--	--
Schley	3.5	3.5	--	--	--	2.0	2.0	--	--	--
Stewart	63.6	54.7	--	4.8	4.1	14.8	12.7	--	1.2	0.9
Sumter	6.5	5.5	--	0.7	0.3	3.0	2.5	--	0.3	0.2
Talbot	12.7	12.1	--	--	0.6	4.2	4.7	--	--	0.2
Taliaferro	18.3	9.7	--	3.0	5.6	4.4	2.5	--	0.7	1.2
Taylor	19.5	16.8	--	2.7	--	5.2	4.5	--	0.7	--
Terrell	6.0	3.2	--	2.8	--	2.5	1.1	--	1.3	0.1
Twigs	47.2	41.1	--	3.8	2.3	11.4	10.0	--	0.9	0.5
Upson	8.9	8.9	--	--	--	4.3	4.2	--	0.1	--
Warren	14.8	14.8	--	--	--	5.1	4.8	--	--	0.3
Washington	54.3	34.6	--	5.9	13.8	13.9	10.2	--	1.2	2.5
Webster	5.5	3.2	--	2.2	0.4	2.0	1.0	--	0.9	0.1
Wilkes	67.8	59.6	--	8.2	--	17.3	14.1	--	2.9	0.3
Wilkinson	57.1	32.7	--	13.2	11.2	13.1	6.8	--	4.0	2.3
Total	1,099.8	843.7	--	140.4	115.7	289.8	220.8	0.1	41.1	27.8

1/ Less than 50,000 cubic feet.

Table 10.--Area of commercial forest land, by forest type and ownership class, 1972

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
----- Thousand acres -----						
Softwood types:						
Longleaf pine	71.3	--	10.2	--	19.6	41.5
Slash pine	463.2	--	1.5	112.7	136.8	212.2
Loblolly pine	2,483.0	73.1	126.5	513.8	570.3	1,199.3
Shortleaf pine	463.4	8.1	13.6	80.0	151.6	210.1
Sand pine	3.5	--	--	3.5	--	--
Eastern redcedar	7.4	--	--	--	3.9	3.5
Pond pine	7.1	--	--	--	--	7.1
Spruce pine	5.9	--	--	5.9	--	--
Total	3,504.8	81.2	151.8	715.9	882.2	1,673.7
Hardwood types:						
Oak-pine	1,222.7	12.9	53.4	185.1	458.3	513.0
Oak-hickory	1,487.3	8.1	15.7	239.0	636.4	588.1
Southern scrub oak	235.1	--	28.6	27.7	35.3	143.5
Oak-gum-cypress	639.0	--	13.4	112.6	282.3	230.7
Elm-ash-cottonwood	233.0	--	12.7	54.8	67.7	97.8
Total	3,817.1	21.0	123.8	619.2	1,480.0	1,573.1
All types	7,321.9	102.2	275.6	1,335.1	2,362.2	3,246.8

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1972

Ownership classes	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
----- Thousand acres -----						
National Forest	102.2	7.0	47.7	47.5	--	--
Other public	275.6	13.4	62.9	119.3	59.4	20.6
Forest industry	1,335.1	63.5	398.2	694.2	131.4	47.8
Farmer	2,362.2	35.5	535.8	1,395.9	351.8	43.2
Misc. private	3,246.8	36.3	898.3	1,711.6	493.2	107.4
All ownerships	7,321.9	155.7	1,942.9	3,968.5	1,035.8	219.0

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1972

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
- - - - - Million cubic feet - - - - -					
Sawtimber trees:					
Saw-log portion	4,338.2	2,657.2	69.5	864.9	746.6
Upper-stem portion	486.6	218.6	5.7	140.8	121.5
Total	4,824.8	2,875.8	75.2	1,005.7	868.1
Poletimber trees	2,843.1	1,345.6	10.9	843.2	643.4
All growing-stock trees	7,667.9	4,221.4	86.1	1,848.9	1,511.5
Rough trees:					
Sawtimber-size trees	154.4	15.2	0.9	65.7	72.6
Poletimber-size trees	303.8	28.7	0.5	124.4	150.2
Total	458.2	43.9	1.4	190.1	222.8
Rotten trees:					
Sawtimber-size trees	136.1	1.0	1.4	70.9	62.8
Poletimber-size trees	28.1	0.7	--	19.7	7.7
Total	164.2	1.7	1.4	90.6	70.5
Salvable dead trees:					
Sawtimber-size trees	5.9	3.5	0.1	1.4	0.9
Poletimber-size trees	5.4	3.5	--	1.1	0.8
Total	11.3	7.0	0.1	2.5	1.7
Total, all timber	8,301.6	4,274.0	89.0	2,132.1	1,806.5

Table 13.--Number of growing-stock trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)										29.0 and larger
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9		
Softwood:												
Thousand trees												
Longleaf pine	14,575	3,490	3,528	3,197	2,371	1,283	510	106	65	25	--	--
Slash pine	74,063	50,334	19,793	2,630	810	320	126	17	28	5	--	--
Loblolly pine	328,579	144,663	79,239	44,572	29,104	17,402	8,009	3,559	1,255	757	19	19
Shortleaf pine	109,166	55,257	27,030	14,288	7,673	3,411	1,089	327	64	27	--	--
Pond pine	1,853	591	471	223	214	168	123	43	14	6	--	--
Spruce pine	813	182	143	145	253	44	21	--	8	17	--	--
Baldcypress	1,872	525	269	189	223	266	155	134	72	39	--	--
Pondcypress	2,848	735	495	551	380	274	241	87	37	45	3	3
Eastern redcedar	1,242	691	252	209	60	30	--	--	--	--	--	--
Total softwoods	535,011	256,468	131,220	66,004	41,088	23,198	10,274	4,273	1,543	921	22	22
Hardwood:												
Select white oaks ^{1/}	24,782	11,747	6,085	3,197	1,551	1,180	476	208	163	166	9	9
Select red oaks ^{2/}	5,934	2,969	1,109	542	581	275	108	179	79	88	4	4
Other white oaks	13,539	5,770	3,820	1,642	1,031	571	338	147	89	118	13	13
Other red oaks	83,420	38,980	19,444	10,838	6,339	3,272	1,938	1,172	583	751	103	103
Hickory	24,087	11,516	4,701	3,584	1,864	1,027	686	333	136	237	3	3
Florida maple	414	255	53	27	--	59	20	--	--	--	--	--
Soft maple	14,537	6,122	3,611	2,471	1,075	719	350	119	33	25	12	12
Beech	707	103	--	125	118	116	56	99	36	51	3	3
Sweetgum	112,365	54,789	26,927	15,405	8,031	4,240	1,698	640	358	269	8	8
Tupelo and blackgum	35,786	11,685	8,732	6,318	4,735	2,559	1,084	395	123	137	18	18
Ash	8,403	3,279	2,227	1,362	673	496	196	34	78	53	5	5
Cottonwood	233	182	--	--	41	--	10	--	--	--	--	--
Basswood	377	140	111	35	77	14	--	--	--	--	--	--
Black walnut	259	76	48	26	59	28	12	10	--	--	--	--
Yellow-poplar	20,486	7,138	4,291	2,919	2,833	1,331	1,046	439	224	230	35	35
Bay and magnolia	7,278	3,055	1,872	1,097	582	457	148	44	7	16	--	--
Elm	10,660	4,303	2,916	1,333	953	644	297	116	65	30	3	3
Flack cherry	1,652	929	366	282	41	12	22	--	--	--	--	--
Sycamore	694	109	160	140	134	44	47	26	15	19	--	--
Hackberry	1,803	382	463	366	176	119	154	72	35	33	3	3
River birch	2,748	1,136	367	405	325	294	112	82	21	6	--	--
Other eastern hardwoods	5,247	3,280	968	503	333	59	57	27	8	12	--	--
Total hardwoods	375,411	167,945	88,271	52,617	31,552	17,516	8,855	4,142	2,053	2,241	219	219
All species	910,422	424,413	219,491	118,621	72,640	40,714	19,129	8,415	3,596	3,162	241	241

^{1/} Includes white and swamp chestnut oaks.

^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 26.9	27.0- 34.9		
----- Million cubic feet -----													
Softwood:													
Longleaf pine	188.2	10.3	22.6	40.6	48.5	35.5	19.6	4.8	4.1	2.2	--	--	
Slash pine	276.3	116.5	98.0	29.4	16.5	8.5	4.4	0.8	1.8	0.4	--	--	
Loblolly pine	2,984.6	368.3	459.0	494.1	569.6	475.3	295.6	175.0	79.9	64.4	3.4	3.4	
Shortleaf pine	781.2	129.3	164.6	170.5	157.1	97.8	40.2	15.6	4.0	2.1	--	--	
Pond pine	24.6	2.1	3.0	3.0	4.5	4.7	4.3	1.9	0.7	0.4	--	--	
Spruce pine	12.1	0.5	0.8	1.7	5.2	1.2	0.8	--	0.4	1.5	--	--	
Baldcypress	37.5	1.7	2.1	2.4	4.2	6.7	5.9	6.3	4.5	3.1	0.6	0.6	
Pondcypress	44.9	2.2	3.1	6.2	7.2	7.4	8.1	4.0	2.4	3.8	0.5	0.5	
Eastern redcedar	6.5	1.2	1.1	2.4	1.1	0.7	--	--	--	--	--	--	
Total softwoods	4,355.9	632.1	754.3	750.3	813.9	637.8	378.9	208.4	97.8	77.9	4.5	4.5	
Hardwood:													
Select white oaks ^{1/}	215.0	30.2	36.4	35.1	27.3	28.9	17.5	9.6	10.8	16.4	3.4	3.4	
Select red oaks ^{2/}	73.1	9.5	7.1	6.3	11.6	7.3	4.3	8.6	6.1	10.0	2.3	2.3	
Other white oaks	123.4	14.7	21.2	16.9	17.6	13.2	12.4	6.5	5.5	12.1	3.3	3.3	
Other red oaks	841.7	113.6	114.4	122.2	115.2	83.4	72.8	56.5	42.2	92.4	27.0	27.0	
Hickory	238.5	27.1	26.9	41.6	34.4	27.5	26.4	16.7	11.0	26.1	0.8	0.8	
Florida maple	3.7	0.6	0.4	0.4	--	1.4	0.9	--	--	--	--	--	
Soft maple	189.0	33.3	33.9	35.7	23.2	24.4	14.8	8.4	6.2	5.7	3.4	3.4	
Peach	26.7	0.2	0.3	2.1	2.2	3.2	2.7	5.0	3.0	6.1	1.9	1.9	
Sweetgum	950.0	135.9	163.9	188.6	168.6	122.2	74.1	34.7	27.5	30.2	4.3	4.3	
Tupelo and blackgum	433.5	40.9	61.1	80.5	93.2	69.3	43.2	19.6	8.2	13.2	3.8	3.8	
Ash	99.9	12.4	19.0	17.1	13.6	13.3	9.0	2.2	5.4	6.9	1.0	1.0	
Cottonwood	1.9	0.7	--	--	0.8	--	0.4	--	--	--	--	--	
Basswood	4.2	0.8	0.7	0.3	1.7	0.4	0.3	--	--	--	--	--	
Black walnut	3.8	0.3	0.2	0.6	1.1	0.6	0.3	0.4	--	0.3	--	--	
Yellow-poplar	274.3	19.9	28.6	34.5	50.8	35.7	37.8	20.9	14.4	21.9	9.8	9.8	
Hay and magnolia	80.6	12.6	15.4	14.7	11.8	14.9	5.5	2.1	0.8	1.7	1.1	1.1	
Elm	117.6	12.7	22.2	16.5	19.6	18.2	12.6	5.8	5.1	4.4	0.5	0.5	
Black cherry	17.3	6.2	3.6	4.8	0.6	0.2	1.1	0.1	--	0.4	--	--	
Sycamore	15.7	0.3	1.9	1.7	3.4	1.5	1.0	1.5	0.8	2.7	0.3	0.3	
Hackberry	34.5	1.8	3.2	4.0	1.3	3.7	6.3	3.7	3.1	3.5	0.6	0.6	
River birch	35.5	3.4	2.6	5.1	6.8	3.6	3.9	3.2	1.5	4.4	--	--	
Other eastern hardwoods	154.5	51.2	39.7	26.9	19.5	7.5	3.9	2.7	1.7	0.8	0.6	0.6	
Total hardwoods	3,934.4	528.3	604.7	655.6	627.3	485.9	352.1	207.6	153.3	255.5	64.1	64.1	
All species	8,290.3	1,160.4	1,359.0	1,405.9	1,441.2	1,123.7	731.0	416.0	251.1	333.4	68.6	68.6	

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and shumard oaks.

Table 15.---Volume of growing stock on commercial forest land, by species and diameter class, 1900.

Species	All classes	Diameter class (inches at breast height)										29.0 and larger
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9		
Softwood:												
----- Million cubic feet -----												
Longleaf pine	187.1	9.9	22.4	40.1	48.5	35.5	19.6	4.8	4.1	2.2	--	--
Slash pine	269.5	113.4	95.6	28.4	16.2	8.5	4.4	0.8	1.8	0.4	--	--
Loblolly pine	2,951.6	356.3	451.4	488.4	564.2	474.0	294.9	174.7	79.9	64.4	3.4	3.4
Shortleaf pine	777.1	127.3	163.4	169.6	157.1	97.8	40.2	15.6	4.0	2.1	--	--
Pond pine	24.0	1.8	2.8	3.0	4.5	4.7	4.3	1.9	0.6	0.4	--	--
Spruce pine	12.1	0.5	0.8	1.7	5.2	1.2	0.8	--	0.4	1.5	--	--
Haldycypress	36.2	1.5	1.9	2.3	4.2	6.7	5.7	6.3	4.5	3.1	--	--
Pondycypress	44.5	2.2	3.1	6.2	7.2	7.4	8.1	4.0	2.3	3.5	0.5	0.5
Eastern redcedar	5.4	1.2	1.0	1.6	0.9	0.7	--	--	--	--	--	--
Total softwoods	4,307.5	614.1	742.4	741.3	808.0	636.5	378.0	208.1	97.6	77.6	3.9	3.9
Hardwood:												
Select white oaks ^{1/}	203.4	29.0	34.3	33.6	26.5	28.3	16.5	8.5	9.8	15.4	1.5	1.5
Select red oaks ^{2/}	65.9	8.5	6.8	5.9	10.7	7.1	4.3	8.1	5.2	8.4	0.9	0.9
Other white oaks	109.5	12.3	19.1	15.7	15.9	12.1	10.7	5.5	5.5	10.5	2.2	2.2
Other red oaks	749.3	102.9	108.1	112.8	107.4	75.0	66.4	49.6	36.1	71.9	19.1	19.1
Hickory	222.3	24.8	25.5	39.1	32.1	26.5	25.4	15.4	9.9	23.1	0.5	0.5
Florida maple	3.0	0.6	0.2	0.3	--	1.2	0.7	--	--	--	--	--
Soft maple	121.8	16.9	20.5	27.0	17.3	17.4	11.4	5.0	2.1	2.3	1.9	1.9
Beech	19.8	0.2	--	1.4	2.2	3.0	2.0	4.0	2.4	4.1	0.5	0.5
Sweetgum	869.1	120.5	154.3	175.6	155.3	116.6	66.3	29.4	24.9	24.7	1.5	1.5
Tupelo and blackgum	375.1	30.6	52.2	70.4	83.6	64.5	37.7	16.2	7.1	10.3	2.5	2.5
Ash	82.5	8.7	13.6	15.3	12.0	12.3	7.8	1.5	4.8	5.5	1.0	1.0
Cottonwood	1.7	0.5	--	--	0.8	--	0.4	--	--	--	--	--
Boxwood	3.1	0.5	0.5	0.3	1.4	0.4	--	--	--	--	--	--
Black walnut	2.8	0.2	0.2	0.2	0.9	0.6	0.3	0.4	--	--	--	--
Yellow-poplar	256.6	18.4	26.6	33.5	50.3	33.7	36.0	19.2	13.6	18.8	6.5	6.5
Bay and magnolia	62.7	9.1	11.5	12.0	10.0	11.5	5.1	1.8	0.5	1.2	--	--
Elm	99.4	9.5	16.5	14.4	17.7	16.4	11.5	5.2	4.5	3.2	0.5	0.5
Black cherry	9.2	2.5	2.1	3.0	0.6	0.2	0.8	--	--	--	--	--
Sycamore	12.8	0.3	1.3	1.7	2.7	1.2	1.6	1.1	0.8	2.1	--	--
Hackberry	30.5	1.1	2.9	3.9	3.0	3.2	6.1	3.7	2.7	3.3	0.6	0.6
River birch	33.5	3.2	2.4	5.1	6.5	7.6	3.9	3.2	1.2	0.4	--	--
Other eastern hardwoods	26.4	7.3	4.8	4.4	5.1	1.2	1.6	0.9	0.3	0.8	--	--
Total hardwoods	3,360.4	407.6	503.4	575.6	562.0	440.0	316.5	178.7	131.4	206.0	39.2	39.2
All species	7,667.9	1,021.7	1,245.8	1,316.9	1,370.0	1,076.5	694.5	386.8	229.0	283.6	43.1	43.1

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and shumard oaks.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)										21.0- 28.0 larger
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.0 larger				
----- Million board feet -----												
Softwood:												
Longleaf pine	798.1	160.8	247.6	202.5	122.6	28.1	23.8	12.7	--			
Slash pine	252.0	95.8	72.4	43.3	24.4	4.1	10.1	1.9				
Loblolly pine	10,593.9	1,830.8	2,718.8	2,524.3	1,722.8	966.1	450.9	361.3	18.9			
Shortleaf pine	2,243.5	642.3	751.8	505.8	225.3	85.0	22.0	11.3	--			
Pond pine	96.4	10.7	21.8	24.9	23.6	10.2	3.0	2.2	--			
Spruce pine	53.9	6.9	25.3	6.3	4.5	--	2.8	8.1	--			
Baldcypress	158.5	7.4	16.9	31.9	31.1	31.7	23.4	16.1	--			
Pondcypress	175.7	17.7	30.2	33.5	42.1	20.1	11.6	17.9	2.6			
Eastern redcedar	11.9	5.8	3.1	3.0	--	--	--	--	--			
Total softwoods	14,383.9	2,778.2	3,887.9	3,375.5	2,196.4	1,145.3	547.6	431.5	21.5			
Hardwood:												
Select white oaks ^{1/}	511.4	--	97.3	131.4	90.5	44.6	54.3	83.4	9.9			
Select red oaks ^{2/}	221.0	--	37.4	32.8	24.3	45.3	30.5	45.0	5.7			
Other white oaks	282.7	--	55.6	50.8	52.3	26.3	31.8	54.2	11.7			
Other red oaks	2,000.2	--	389.7	326.7	355.9	260.1	185.2	381.4	101.2			
Hickory	628.6	--	109.9	116.7	141.2	81.4	51.1	125.5	2.8			
Florida maple	9.3	--	--	5.8	3.5	--	--	--	--			
Soft maple	237.2	--	56.4	71.2	55.4	22.0	10.8	11.0	10.4			
Beech	97.4	--	8.0	14.9	12.2	21.8	14.9	23.1	2.5			
Sweetgum	1,943.5	--	591.5	544.7	374.6	154.5	133.7	135.4	9.1			
Tupelo and blackgum	925.7	--	283.2	273.2	193.5	80.1	35.1	49.0	11.6			
Ash	187.7	--	35.8	49.4	39.2	7.5	22.6	28.6	4.6			
Cottonwood	5.8	--	4.0	--	1.8	--	--	--	--			
Basswood	7.2	--	5.0	2.2	--	--	--	--	--			
Black walnut	9.2	--	2.6	3.2	1.8	1.6	--	--	--			
Yellow-poplar	955.6	--	205.1	172.0	222.2	117.1	84.5	116.0	38.7			
Bay and magnolia	132.2	--	35.3	51.9	26.2	9.6	2.5	6.7	--			
Elm	242.7	--	57.9	63.1	57.2	24.0	22.1	15.2	3.2			
Black cherry	6.7	--	1.8	1.2	3.7	--	--	--	--			
Sycamore	46.9	--	9.2	5.3	9.3	6.6	4.9	11.6	--			
Hackberry	95.9	--	9.9	11.7	25.0	16.7	13.1	16.5	3.0			
River birch	100.4	--	22.7	32.2	20.5	16.9	6.0	2.1	--			
Other eastern hardwoods	42.9	--	17.9	5.7	8.6	4.6	1.9	4.2	--			
Total hardwoods	8,690.2	--	2,036.2	1,966.1	1,718.9	940.7	705.0	1,108.9	214.4			
All species	23,074.1	2,778.2	5,924.1	5,341.6	3,915.3	2,086.0	1,252.6	1,540.4	235.9			

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1971

Species	Net annual growth	Annual timber removals
- - <u>Million cubic feet</u> - -		
Softwood:		
Yellow pines	349.7	220.8
Cypress	1.6	0.1
Other eastern softwoods	0.5	--
Total softwoods	351.8	220.9
Hardwood:		
Select white and red oaks	14.5	4.4
Other white and red oaks	47.1	15.1
Hickory	7.5	5.1
Hard maple	0.1	--
Sweetgum	38.0	19.1
Ash, walnut, and black cherry	3.7	2.2
Yellow-poplar	15.3	6.6
Tupelo and blackgum	8.5	9.2
Bay and magnolia	1.2	1.0
Other eastern hardwoods	12.6	6.2
Total hardwoods	148.5	68.9
All species	500.3	289.8

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1971

Species	Net annual growth	Annual timber removals
- - - Million board feet - - -		
Softwood:		
Yellow pines	1,261.2	843.7
Cypress	8.3	--
Other eastern softwoods	0.8	--
Total softwoods	1,270.3	843.7
Hardwood:		
Select white and red oaks	39.6	20.7
Other white and red oaks	127.4	57.0
Hickory	24.3	28.9
Hard maple	0.2	--
Sweetgum	98.6	67.6
Ash, walnut, and black cherry	12.6	5.3
Yellow-poplar	61.7	26.2
Tupelo and blackgum	24.9	28.2
Bay and magnolia	3.0	1.0
Other eastern hardwoods	39.7	20.3
Total hardwoods	432.0	256.1
All species	1,702.3	1,099.8

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1971

Species	Growing stock	Sawtimber
Million cubic feet Million board feet		
Softwood:		
Yellow pines	28.4	71.2
Cypress	0.3	0.9
Other eastern softwoods	0.1	0.5
Total softwoods	28.8	72.6
Hardwood:		
Select white and red oaks	1.9	6.7
Other white and red oaks	6.2	16.1
Hickory	1.1	5.2
Hard maple	--	--
Sweetgum	5.4	13.2
Ash, walnut, and black cherry	1.1	1.0
Yellow-poplar	1.2	3.0
Tupelo and blackgum	2.0	6.9
Bay and magnolia	1.8	4.8
Other eastern hardwoods	4.7	10.0
Total hardwoods	25.4	66.9
All species	54.2	139.5

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1972

Ownership class	All live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million cubic feet									
National Forest	196.7	163.9	0.8	13.2	18.8	192.7	163.9	0.8	11.7	16.3
Other public	468.8	334.3	0.2	88.4	45.9	445.5	333.3	--	77.4	34.8
Forest industry	1,000.2	862.0	40.0	381.0	326.2	1,516.4	853.5	38.7	341.1	283.1
Farmer	2,632.1	1,119.3	20.1	819.6	673.1	2,398.0	1,105.1	19.6	696.9	576.4
Miscellaneous private	3,383.5	1,787.5	27.8	827.4	740.8	3,115.3	1,765.6	27.0	721.8	600.9
All ownerships	8,290.3	4,267.0	88.9	2,129.6	1,804.8	7,667.9	4,221.4	86.1	1,848.9	1,511.5

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1972

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet									
National Forest	410.6	376.1	2.8	11.6	20.1	379.8	342.9	--	17.1	19.8
Other public	957.4	826.6	--	103.7	27.1	786.4	623.4	--	91.7	71.3
Forest industry	2,812.1	1,948.6	74.4	506.3	282.8	1,942.0	779.7	80.4	526.6	555.3
Farmer	4,180.3	2,686.1	33.3	887.2	573.7	2,614.4	947.0	30.5	755.0	881.9
Miscellaneous private	5,683.5	4,054.7	39.0	951.7	638.1	3,307.6	1,452.7	85.7	765.7	1,003.5
All ownerships	14,043.9	9,892.1	149.5	2,460.5	1,541.8	9,030.2	4,115.7	196.6	2,156.1	2,531.8

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million cubic feet									
National Forest	11.1	9.5	0.2	0.6	0.8	4.4	4.4	--	--	--
Other public	23.6	19.1	--	2.4	2.1	15.7	12.6	--	2.1	1.0
Forest industry	100.9	73.9	0.7	12.8	13.5	61.4	53.2	--	5.2	3.0
Farmer	150.9	91.9	0.6	28.5	29.9	80.5	49.5	0.1	17.8	13.1
Miscellaneous private	213.8	155.3	0.6	28.7	29.2	127.8	101.1	--	16.0	10.7
All ownerships	500.3	349.7	2.1	73.0	75.5	289.8	220.8	0.1	41.1	27.8

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet									
National Forest	48.9	44.0	0.2	2.4	2.3	19.8	19.8	--	--	--
Other public	105.4	92.4	--	8.2	4.8	71.7	61.6	--	7.0	3.1
Forest industry	348.8	261.9	3.4	41.5	42.0	230.1	200.9	--	17.4	11.8
Farmer	501.0	332.4	2.6	82.5	83.5	309.3	191.9	--	62.6	54.8
Miscellaneous private	698.2	530.5	2.9	83.2	81.6	468.9	369.5	--	53.4	46.0
All ownerships	1,702.3	1,261.2	9.1	217.8	214.2	1,099.8	843.7	--	140.4	115.7

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1972

Forest type, species group, and class of material	All ownerships		Ownership class									
			National Forest		Other public		Forest industry		Farmer		Misc. private	
	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Pine types:												
Growing stock:												
Softwood	2,895	925	9,300	2,152	6,094	1,432	2,789	928	2,512	831	2,503	862
Hardwood	241	120	368	187	323	132	188	92	253	142	229	118
Total	3,136	1,045	9,668	2,336	6,417	1,564	2,977	1,020	2,765	973	2,732	980
Other timber:												
Softwood	--	11	--	--	--	6	--	10	--	11	--	12
Hardwood	--	20	--	40	--	17	--	14	--	20	--	23
Total	--	31	--	40	--	23	--	24	--	31	--	35
Oak-pine types:												
Growing stock:												
Softwood	2,106	541	1,591	1,342	3,276	661	1,916	494	2,063	558	1,957	513
Hardwood	869	416	1,155	583	819	260	881	407	904	442	835	417
Total	2,975	957	2,746	1,925	4,095	921	2,797	901	2,967	1,000	2,792	930
Other timber:												
Softwood	--	6	--	--	--	--	--	5	--	8	--	3
Hardwood	--	80	--	114	--	66	--	63	--	83	--	87
Total	--	86	--	114	--	66	--	68	--	91	--	90
Upland hardwood types:												
Growing stock:												
Softwood	546	137	1,237	343	533	138	620	145	556	140	501	130
Hardwood	1,856	714	3,442	1,244	1,133	410	2,084	708	1,973	810	1,685	639
Total	2,402	851	4,679	1,637	1,666	548	2,704	853	2,529	950	2,186	769
Other timber:												
Softwood	--	1	--	--	--	--	--	--	--	1	--	2
Hardwood	--	132	--	28	--	133	--	111	--	134	--	139
Total	--	133	--	28	--	133	--	111	--	135	--	141
Bottomland hardwood types:												
Growing stock:												
Softwood	806	185	--	--	861	165	1,552	371	494	131	791	160
Hardwood	4,126	1,381	--	--	3,219	1,326	6,539	1,865	3,124	1,132	4,193	1,433
Total	4,932	1,566	--	--	4,080	1,491	8,091	2,236	3,618	1,263	4,984	1,593
Other timber:												
Softwood	--	3	--	--	--	--	--	9	--	1	--	3
Hardwood	--	203	--	--	--	206	--	195	--	208	--	202
Total	--	206	--	--	--	206	--	204	--	209	--	205
All types:												
Growing stock:												
Softwood	1,964	588	8,348	1,905	4,162	957	2,100	650	1,565	476	1,785	568
Hardwood	1,186	457	793	324	843	322	1,363	455	1,311	539	1,065	419
Total	3,150	1,047	9,141	2,229	5,005	1,279	3,463	1,105	2,876	1,015	2,850	987
Other timber:												
Softwood	--	7	--	--	--	4	--	7	--	6	--	7
Hardwood	--	70	--	46	--	63	--	60	--	93	--	78
Total	--	77	--	46	--	67	--	67	--	99	--	85
All timber	3,150	1,122	9,141	2,275	5,005	1,346	3,463	1,172	2,876	1,114	2,850	1,072

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1952, 1961, and 1972

Land use class	Survey completion date			Change 1961-1972
	1952	1961 ^{2/}	1972	
- - - - - <u>Thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	4,339.8	4,805.5	4,727.5	- 78.0
Hardwood types	2,347.7	2,611.1	2,594.4	- 16.7
Total	6,687.5	7,416.6	7,321.9	- 94.7
Noncommercial forest land:				
Productive-reserved	1.0	14.7	18.6	+ 3.9
Unproductive	1.2	1.0	--	- 1.0
Total	2.2	15.7	18.6	+ 2.9
Nonforest land:				
Cropland	2,797.0	1,819.7	1,809.4	- 10.3
Pasture and range	668.6	890.3	806.9	- 83.4
Other	344.0	352.4	510.6	+158.2
Total	3,809.6	3,062.4	3,126.9	+ 64.5
All land ^{1/}	10,499.3	10,494.7	10,467.4	- 27.3

1/ Excludes all water areas.

2/ These figures differ slightly from reported figures because of revisions in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)									
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger	
SAWTIMBER (in million board feet)												
Softwood	1952	7,677.4	--	--	2,140.5	2,333.3	1,616.2	793.0	383.6	183.1	227.7	
	1961	10,288.9	--	--	2,517.3	3,144.3	2,092.5	1,311.5	653.7	312.6	257.0	
	1972	14,383.9	--	--	2,778.2	3,887.9	3,375.5	2,196.4	1,145.3	547.6	453.0	
Hardwood	1952	6,832.8	--	--	--	1,419.7	1,526.0	1,266.6	837.5	651.1	1,131.9	
	1961	6,880.8	--	--	--	1,652.6	1,629.2	1,160.2	770.3	704.4	964.1	
	1972	8,690.2	--	--	--	2,036.2	1,966.1	1,718.9	940.7	705.0	1,323.3	
GROWING STOCK (in million cubic feet)												
Softwood	1952	2,455.9	321.8	493.5	571.1	484.9	304.8	136.5	69.7	32.6	41.0	
	1961	3,151.7	433.5	552.1	671.6	653.4	394.6	225.7	118.8	55.7	46.3	
	1972	4,307.5	614.1	742.4	741.3	808.0	636.5	378.0	208.1	97.6	81.5	
Hardwood	1952	2,389.9	226.9	294.2	412.2	391.8	341.5	233.2	159.1	121.3	209.7	
	1961	2,591.2	304.4	375.4	420.8	456.2	364.6	213.6	146.4	131.2	178.6	
	1972	3,360.4	407.6	503.4	575.6	562.0	440.0	316.5	178.7	131.4	245.2	
ALL LIVE TIMBER (in million cubic feet)												
Softwood	1952	2,485.3	331.7	500.9	578.0	488.5	305.5	136.8	69.8	32.7	41.4	
	1961	3,188.4	446.9	560.3	679.7	658.3	395.4	226.2	119.0	55.8	46.8	
	1972	4,355.9	632.1	754.3	750.3	813.9	637.8	378.9	208.4	97.8	82.4	
Hardwood	1952	2,790.2	293.4	353.4	469.6	437.5	377.2	259.4	184.9	141.5	273.3	
	1961	3,029.6	393.6	451.0	479.4	509.3	402.7	237.6	170.0	153.2	232.8	
	1972	3,934.4	528.3	604.7	655.6	627.3	485.9	352.1	207.6	153.3	319.6	

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Cathey, Robert A.

1972. Forest statistics for Central Georgia, 1972. Southeast. Forest Exp. Stn., USDA Forest Serv. Resour. Bull. SE-22, 34 pp.

Annual growth exceeded removals in this 49-county area by 210 million cubic feet, or 73 percent. Southern yellow pines account for about 61 percent of this surplus growth. The average annual growth rate for Central Georgia is 68 cubic feet per acre of commercial forest land, substantially higher than that found in either Southeast or Southwest Georgia. The area of commercial forest has not significantly changed since 1961, and currently occupies 7.3 million acres.

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Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

SOUTHERN PULPWOOD PRODUCTION, 1971

Thomas R. Bellamy



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Southeastern Forest Experiment Station
Asheville, North Carolina

August 1972

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**SOUTHEASTERN FOREST EXPERIMENT
STATION**

Asheville, North Carolina

and

**SOUTHERN FOREST EXPERIMENT
STATION**

New Orleans, Louisiana

of the

**Forest Service, U. S. Department of
Agriculture**

in cooperation with the

AMERICAN PULPWOOD ASSOCIATION

1972

SOUTHERN PULPWOOD PRODUCTION, 1971

Thomas R. Bellamy

Associate Mensurationist

SOUTHERN PULPWOOD PRODUCTION IN 1971 totaled 41,913,816 cords—67 percent of the Nation's total. The region's production was down slightly (about 1 percent from the previous year) for the first time in 13 years. During the year, two new mills began production and 20 others increased their capacities. These expansions boosted daily pulping capacity in the region by 5 percent, to 87,496 tons. At the end of the year there were 109 pulpmills in the region, with three more under construction.

Pulpwood production in the South totaled 41.9 million cords in 1971, but was down slightly from the previous year for the first time in 13 years. Several factors contributed to the decline, including a softening in the market and a reduction in the inventories at woodyards.

Production was up in only five of the 12 states, all in the Midsouth (table 1). In cords produced, the largest increases occurred in Arkansas and Texas, and the largest declines were in North Carolina and Mississippi. Production in Georgia, the leading state, totaled almost 7.3 million cords, about the same as for 1970.

Roundwood production totaled almost 31.8 million cords, down by 5 percent from 1970. By species group, the only increase was in the production from gums—from 2.4 to 2.7 million cords. Softwood species, primarily southern yellow pines, continued to provide more than three-fourths of the total roundwood produced (table 2). Total roundwood production was up in four states: Arkansas, Louisiana, Tennessee, and Texas (table 3).

An 18-percent increase in the use of wood residues for pulpwood tended to offset the decline in roundwood production. Output of wood residues for pulp manufacture amounted to the equivalent of 10.1 million cords, or 24 percent of

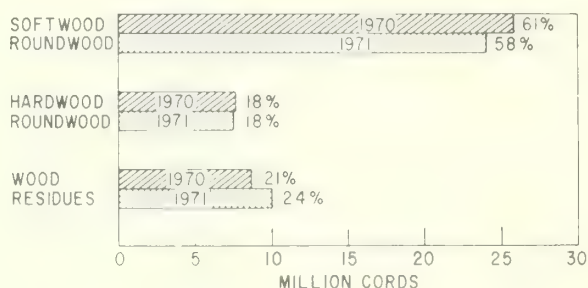


Figure 1. Pulpwood production in the South, by source and percent of total production, 1970-1971.

total production (fig. 1). Almost 81 percent of these residues were from softwood species, compared to 76 percent in 1970. This change probably reflects increased production of softwood lumber and plywood. Total output from wood residues was up by more than 30 percent in Arkansas, Georgia, and Oklahoma (table 4), and more than 90 percent of the residue volume was in the form of chips (table 5).

In 1969, total pulpwood production in the Midsouth surpassed that in the Southeast for the first time in at least 30 years. This shift in production patterns continued, and in 1971 production in the Midsouth exceeded that in the Southeast by more than 2.3 million cords. The Southeast led only in the production of softwood roundwood (table 6).

Production of roundwood in 1971 exceeded 100,000 cords in 69 counties or parishes, and 48 of these are located in the Midsouth (tables 7-18). Baldwin and Choctaw Counties in Alabama, Beaufort County in North Carolina, and Vernon Parish in Louisiana were the leaders with almost 884,000 cords produced.

Two new mills began operation during 1971 and 20 others increased their capacities. As a result of these expansions, daily pulping capacity at the 109 mills in the South increased to 87,490 tons, or by 5 percent (table 19). At the end of the year, there were three new mills under construction (table 20). In 1971, 14 mills located outside the region also drew wood from the South.

Table 1.--Pulpwood production in the South during 1971, and change since 1970

State	Pulpwood	Change
	Thousand cords	Percent
Alabama	6,283.6	- 2
Arkansas	3,175.5	+ 23
Florida	3,374.8	- 1
Georgia	7,258.1	(1/)
Louisiana	3,195.8	+ 2
Mississippi	4,679.7	- 7
North Carolina	3,654.4	- 11
Oklahoma	226.3	+ 15
South Carolina	3,205.6	- 3
Tennessee	629.7	+ 11
Texas	3,129.4	+ 7
Virginia	2,300.9	- 4
All States	41,913.8	- 1

1/ Less than 0.5 percent decrease.

Table 2.--Roundwood production in the South, by State and species group, 1971

State	All species	Softwood	Hardwood			
			Total	Gums	Oaks	Other hardwoods
----- Thousand cords -----						
Alabama	4,356.7	3,430.0	1,428.7	472.4	602.7	353.6
Arkansas	1,534.6	1,236.2	648.4	221.4	275.3	151.7
Florida	2,886.5	2,662.1	224.4	82.2	78.4	63.8
Georgia	5,720.9	5,116.6	604.3	235.5	233.9	134.9
Louisiana	3,195.8	2,348.3	816.6	317.6	234.1	264.9
Mississippi	3,500.7	2,624.6	775.2	337.8	331.7	305.7
North Carolina	2,827.5	1,854.1	973.4	461.0	352.8	159.6
Oklahoma	21.5	54.1	37.4	6.6	6.0	24.8
South Carolina	2,376.1	1,801.2	574.9	257.5	243.2	74.2
Tennessee	475.7	195.6	279.9	26.3	185.0	68.6
Texas	2,177.2	1,883.9	293.3	88.2	143.7	61.4
Virginia	1,711.9	873.8	838.1	183.4	399.6	254.6
All States	31,775.3	24,080.7	7,694.6	2,690.4	3,086.4	1,917.8

Table 3.--Roundwood production in the South, by State and species group, 1971 and 1970

State	:	Change from 1970	1971			1970		
			All species	Softwood	Hardwood	All species	Softwood	Hardwood
Percent		- - - - - Thousand cords - - - - -						
Alabama	- 6	4,858.7	3,430.0	1,428.7	5,188.6	3,676.1	1,512.5	
Arkansas	+13	1,884.6	1,236.2	648.4	1,667.6	1,122.9	544.7	
Florida	- 2	2,886.5	2,662.1	224.4	2,941.9	2,708.2	233.7	
Georgia	- 7	5,720.9	5,116.6	604.3	6,178.3	5,584.0	593.5	
Louisiana	+ 6	3,164.9	2,348.3	816.6	2,789.4	2,248.3	741.1	
Mississippi	-13	3,599.8	2,624.6	975.2	4,124.3	3,073.6	1,050.7	
North Carolina	-17	2,827.5	1,854.1	973.4	3,415.0	2,381.5	1,033.5	
Oklahoma	- 2	91.5	54.1	37.4	93.1	49.5	43.6	
South Carolina	- 7	2,376.1	1,801.2	574.9	2,557.6	2,009.1	548.5	
Tennessee	+ 9	475.7	195.8	279.9	436.9	190.1	246.8	
Texas	+ 4	2,177.2	1,883.9	293.3	2,092.6	1,819.7	272.9	
Virginia	- 8	1,711.9	873.8	838.1	1,862.0	962.1	899.9	
All States	- 5	31,775.3	24,080.7	7,694.6	33,547.3	25,825.9	7,721.4	

Table 4.--Southern output of wood residues for pulp manufacture, by State and species group, 1971 and 1970

State	:	:	1971			:	1970		
	:	Change	:	:	:	:	:	:	
	:	from	All	Softwood	Hardwood	All	Softwood	Hardwood	
	:	1970	species	:	:	species	:	:	
:	:	:	:	:	:	:	:		
Percent		- - - - - Thousand cords - - - - -							
Alabama	+17	1,424.9	1,157.3	267.6	1,220.8	963.0	257.8		
Arkansas	+42	1,290.9	1,130.7	160.2	906.6	733.8	172.8		
Florida	+ 1	488.3	401.0	87.3	483.3	391.0	92.3		
Georgia	+39	1,537.2	1,314.5	222.7	1,102.3	916.3	186.0		
Louisiana	-10	830.9	687.1	143.8	926.5	637.5	289.0		
Mississippi	+16	1,079.9	830.9	249.0	929.6	671.1	258.5		
North Carolina	+19	826.9	608.2	218.7	692.5	493.0	199.5		
Oklahoma	+30	134.8	131.0	3.8	103.6	98.9	4.7		
South Carolina	+12	829.5	668.8	160.7	743.2	568.3	174.9		
Tennessee	+18	154.0	12.8	141.2	130.4	12.1	118.3		
Texas	+15	952.2	880.7	71.5	825.0	758.1	66.9		
Virginia	+ 9	589.0	351.8	237.2	541.3	326.5	214.8		
All States	+18	10,138.5	8,174.8	1,963.7	8,605.1	6,569.6	2,035.5		

Table 5.--Southern output of wood residues for pulp manufacture, by State and type of residue, 1971

State	All types	Chips			Other residues ^{1/}		
		All	Softwood	Hardwood	All	Softwood	Hardwood
		species			species		
----- Thousand cords -----							
Alabama	1,424.9	1,327.8	1,063.9	263.9	97.1	93.4	3.7
Arkansas	1,290.9	1,159.5	1,019.5	140.0	131.4	111.2	20.2
Florida	488.3	472.3	385.0	87.3	16.0	16.0	--
Georgia	1,537.2	1,512.1	1,292.2	219.9	25.1	22.3	2.8
Louisiana	830.9	760.1	637.7	122.4	70.8	49.4	21.4
Mississippi	1,079.9	1,006.1	780.6	225.5	73.8	50.3	23.5
North Carolina	826.9	782.3	578.8	203.5	44.6	29.4	15.2
Oklahoma	134.8	134.8	131.0	3.8	--	--	--
South Carolina	829.5	778.0	619.6	158.4	51.5	49.2	2.3
Tennessee	154.0	153.6	12.4	141.2	0.4	0.4	--
Texas	952.2	831.7	760.2	71.5	120.5	120.5	--
Virginia	589.0	550.3	327.3	223.0	38.7	24.5	14.2
All States	10,138.5	9,468.6	7,608.2	1,860.4	669.9	566.6	103.3

^{1/} Veneer cores, pole and piling trim, cull crossties, sawdust and secondary residues.

Table 6.--Southern pulpwood production by Experiment Station territory, 1971

Station and source of wood	All species	Softwood	Hardwood
----- Standard cords -----			
Southeastern:			
Roundwood	15,522,916	12,307,802	3,215,114
Residues	4,270,857	3,344,235	926,622
Total	19,793,773	15,652,037	4,141,736
Southern:			
Roundwood	16,252,442	11,772,898	4,479,544
Residues	5,867,601	4,830,557	1,037,044
Total	22,120,043	16,603,455	5,516,588
Both stations:			
Roundwood	31,775,358	24,080,700	7,694,658
Residues	10,138,458	8,174,792	1,963,666
Total	41,913,816	32,255,492	9,658,324

Table 7.--Round pulpwood production in Alabama, 1971

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Autauga	50,573	27,420	23,153
Baldwin	244,090	193,716	50,374
Barbour	109,518	86,458	23,060
Bibb	66,446	49,934	16,512
Blount	32,960	31,087	1,873
Bullock	36,803	28,627	8,176
Butler	142,028	74,214	67,814
Calhoun	42,117	36,444	5,673
Chambers	67,596	51,203	16,393
Cherokee	32,886	30,365	2,521
Chilton	73,102	53,034	20,068
Choctaw	214,494	85,054	129,440
Clarke	151,005	76,376	74,629
Clay	93,129	63,658	29,471
Cleburne	62,636	57,559	5,077
Coffee	45,292	32,980	12,312
Colbert	5,143	4,754	389
Conecuh	121,572	81,099	40,473
Coosa	129,466	92,799	36,667
Covington	103,735	79,280	24,455
Crenshaw	82,861	54,510	28,351
Cullman	52,472	49,538	2,934
Dale	85,441	54,336	31,105
Dallas	102,811	53,288	49,523
De Kalb	17,398	16,261	1,137
Elmore	51,797	36,792	15,005
Escambia	133,694	114,602	19,092
Etowah	32,965	32,257	708
Fayette	30,453	27,972	2,481
Franklin	26,556	24,138	2,418
Geneva	43,203	36,535	6,668
Greene	53,845	28,213	25,632
Hale	50,341	29,981	20,360
Henry	56,631	39,179	17,452
Houston	40,831	33,787	7,044

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Jackson	6,153	4,431	1,722
Jefferson	35,271	32,707	2,564
Lamar	48,779	43,513	5,266
Lauderdale	9,548	7,466	2,082
Lawrence	3,668	2,007	1,661
Lee	77,676	71,604	6,072
Limestone	2,065	269	1,796
Lowndes	78,696	53,376	25,320
Macon	49,558	41,673	7,885
Madison	428	244	184
Marengo	166,435	87,622	78,813
Marion	50,078	47,274	2,804
Marshall	14,816	14,808	8
Mobile	121,647	101,393	20,254
Monroe	163,579	97,811	65,768
Montgomery	78,154	55,854	22,300
Morgan	8,852	3,807	5,045
Perry	74,514	43,298	31,216
Pickens	88,462	48,073	40,389
Pike	70,164	55,579	14,585
Randolph	92,205	69,159	23,046
Russell	52,264	50,539	1,725
St. Clair	57,227	53,585	3,642
Shelby	55,901	43,543	12,358
Sumter	97,611	43,089	54,522
Talladega	50,054	40,154	9,900
Tallapoosa	150,109	116,192	33,917
Tuscaloosa	60,184	53,219	6,965
Walker	88,402	77,465	10,937
Washington	147,588	99,687	47,901
Wilcox	132,928	66,961	65,967
Winston	39,765	36,088	3,677
All counties	4,858,671	3,429,940	1,428,731

Table 8.--Round pulpwood production in Arkansas, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Arkansas	4	4	--	Logan	9,713	8,834	879
Ashley	91,025	51,631	39,394	Lonoke	2,628	12	2,616
Boone	3	3	--	Miller	26,845	18,012	8,833
Bradley	26,072	13,368	12,704	Mississippi	1,039	--	1,039
Calhoun	88,497	64,409	24,088	Monroe	3	--	3
Chicot	7,456	--	7,456	Montgomery	18,143	14,809	3,334
Clark	69,615	46,457	23,158	Nevada	92,492	77,647	14,845
Cleburne	21,469	19,025	2,444	Newton	8	8	--
Cleveland	57,475	29,682	27,793	Ouachita	76,238	53,930	22,308
Columbia	71,324	57,480	13,844	Perry	11,679	10,111	1,568
Conway	25,779	20,166	5,613	Phillips	3,797	--	3,797
Crawford	3,589	720	2,869	Pike	52,771	43,817	8,954
Crittenden	721	--	721	Polk	28,422	23,959	4,463
Dallas	100,241	59,310	40,931	Pope	22,295	18,714	3,581
Desha	18,143	11	18,132	Prairie	23	--	23
Drew	100,775	50,430	50,345	Pulaski	14,000	6,392	7,608
Faulkner	257	--	257	St. Francis	7	4	3
Franklin	2,370	2,005	365	Saline	44,168	27,806	16,362
Garland	12,904	9,560	3,344	Scott	13,007	11,826	1,181
Grant	126,285	62,801	63,484	Searcy	8	4	4
Hempstead	56,450	45,566	10,884	Sebastian	880	750	130
Hot Spring	60,609	37,539	23,070	Sevier	37,920	22,016	15,904
Howard	43,042	33,118	9,924	Stone	1,375	1,200	175
Independence	7,587	3,878	3,709	Union	171,958	120,829	51,129
Izard	2,725	2,264	461	Van Buren	19,298	16,578	2,720
Jackson	828	78	750	White	12,251	1,626	10,625
Jefferson	55,467	33,505	21,962	Woodruff	65	10	55
Johnson	14,546	10,395	4,151	Yell	30,346	23,022	7,324
Lafayette	57,213	43,943	13,270	All counties	1,884,564	1,236,179	648,385
Lee	3,902	24	3,878				
Lincoln	24,083	7,269	16,814				
Little River	42,729	29,622	13,107				

^{1/} Counties with no pulpwood production are omitted.

Table 9.--Round pulpwood production in Florida, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Alachua	71,577	60,389	11,188	Lake	7,360	7,360	--
Baker	122,401	122,104	297	Lee	6,025	6,025	--
Bay	70,552	70,297	255	Leon	32,877	32,273	604
Bradford	70,409	68,090	2,319	Levy	122,300	85,625	36,675
Brevard	39	39	--	Liberty	47,524	37,754	9,770
Calhoun	114,413	108,419	5,994	Madison	86,002	81,474	4,528
Charlotte	1,102	1,102	--	Manatee	787	787	--
Citrus	6,048	5,529	519	Marion	105,942	88,399	17,543
Clay	72,939	63,201	9,738	Nassau	166,076	164,198	1,878
Collier	223	223	--	Okaloosa	37,985	32,173	5,812
Columbia	112,039	111,214	825	Okeechobee	1,196	1,196	--
Dade	2,359	2,359	--	Orange	200	200	--
De Soto	550	550	--	Osceola	39,151	39,151	--
Dixie	69,344	56,975	12,369	Palm Beach	368	368	--
Duval	64,409	62,678	1,731	Pasco	14,764	12,374	2,390
Escambia	86,907	82,774	4,133	Pinellas	278	278	--
Flagler	60,911	51,211	9,700	Polk	20,483	19,983	500
Franklin	54,605	54,361	244	Putnam	84,371	67,392	16,979
Gadsden	31,094	29,578	1,516	St. Johns	63,647	62,615	1,032
Gilchrist	21,117	15,125	5,992	St. Lucie	173	173	--
Glades	4,200	4,200	--	Santa Rosa	72,283	69,193	3,090
Gulf	23,921	19,526	4,395	Sarasota	5,509	5,509	--
Hamilton	48,954	48,954	--	Seminole	7,366	7,366	--
Hardee	22,728	22,728	--	Sumter	988	988	--
Hendry	23,898	23,898	--	Suwannee	47,460	44,573	2,887
Hernando	3,961	2,547	1,414	Taylor	164,004	163,246	758
Highlands	9,966	9,966	--	Union	34,542	34,542	--
Hillsborough	8,428	8,428	--	Volusia	34,801	29,251	5,550
Holmes	62,263	54,285	7,978	Wakulla	50,282	49,483	799
Indian River	4,158	4,158	--	Walton	86,785	74,027	12,758
Jackson	108,105	94,521	13,584	Washington	55,734	51,719	4,015
Jefferson	40,517	37,826	2,691				
Lafayette	95,091	95,091	--	All counties	2,886,491	2,662,041	224,450

^{1/} Counties with no pulpwood production are omitted.

Table 10.--Round pulpwood production in Georgia, 1971

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
-- Standard cords --				-- Standard cords --			
Appling	144,338	124,256	20,082	Gilmer	8,844	6,907	1,937
Atkinson	113,544	113,007	537	Glascock	2,109	1,716	393
Bacon	57,339	56,911	428	Glynn	63,284	45,614	17,670
Baker	20,086	16,270	3,816	Gordon	22,076	20,657	1,419
Baldwin	33,320	29,902	3,418	Grady	30,082	24,197	5,885
Banks	14,235	12,999	1,236	Greene	41,021	33,157	7,864
Barrow	31,287	25,413	5,874	Gwinnett	20,951	20,884	67
Bartow	16,155	15,927	228	Habersham	10,345	5,881	4,464
Ben Hill	72,135	71,020	1,115	Hall	17,295	17,229	66
Berrien	33,434	28,553	4,881	Hancock	48,267	38,540	9,727
Bibb	12,868	11,008	1,860	Haralson	41,565	37,962	3,603
Bleckley	24,180	14,740	9,440	Harris	80,150	77,168	2,982
Brantley	121,444	110,639	10,805	Hart	4,283	4,083	200
Brooks	31,147	26,569	4,578	Heard	32,847	32,199	648
Bryan	68,878	64,219	4,659	Henry	30,553	26,069	4,484
Bulloch	31,903	29,736	2,167	Houston	43,961	39,426	4,535
Burke	30,138	15,636	14,502	Irwin	4,635	4,635	--
Butts	25,063	22,459	2,604	Jackson	14,865	14,400	465
Calhoun	25,758	19,009	6,749	Jasper	27,186	23,838	3,348
Camden	98,445	82,270	16,175	Jeff Davis	40,238	36,867	3,371
Candler	19,289	15,810	3,479	Jefferson	25,016	17,574	7,442
Carroll	74,507	74,146	361	Jenkins	27,267	21,514	5,753
Catoosa	3,947	3,393	554	Johnson	29,126	22,215	6,911
Charlton	120,625	115,725	4,900	Jones	34,444	29,993	4,451
Chatham	16,126	15,076	1,050	Lamar	19,146	17,940	1,206
Chattahoochee	26,997	19,380	7,617	Lanier	14,280	14,080	200
Chattooga	19,120	18,251	869	Laurens	60,605	48,049	12,556
Cherokee	53,964	53,577	387	Lee	6,538	6,371	167
Clarke	3,629	3,429	200	Liberty	140,940	111,180	29,760
Clay	33,112	26,128	6,984	Lincoln	24,394	21,949	2,445
Clayton	5,130	5,009	121	Long	65,136	60,942	4,194
Clinch	174,204	171,785	2,419	Lowndes	23,924	23,724	200
Cobb	15,664	15,225	439	Lumpkin	11,817	11,790	27
Coffee	84,422	83,213	1,209	McDuffie	6,554	5,248	1,306
Colquitt	30,801	24,799	6,002	McIntosh	52,055	48,579	3,476
Columbia	36,681	28,921	7,760	Macon	35,860	26,321	9,539
Cook	18,170	17,920	250	Madison	11,337	10,797	540
Coweta	44,581	44,525	56	Marion	15,886	14,436	1,450
Crawford	58,476	56,480	1,996	Meriwether	59,308	58,148	1,160
Crisp	8,254	8,232	22	Miller	23,751	19,210	4,541
Dade	1,646	1,633	13	Mitchell	40,822	38,836	1,986
Dawson	7,853	7,802	51	Monroe	50,414	45,350	5,064
Decatur	58,602	48,310	10,292	Montgomery	49,810	48,500	1,310
De Kalb	2,465	2,465	--	Morgan	11,993	8,777	3,216
Dodge	102,774	90,845	11,929	Murray	25,765	24,384	1,381
Dooley	18,408	12,260	6,148	Muscogee	5,950	5,748	202
Dougherty	43,941	39,334	4,607	Newton	18,543	15,235	3,308
Douglas	17,840	17,248	592	Oconee	28,159	24,319	3,840
Early	24,005	19,500	4,505	Oglethorpe	30,418	24,881	5,537
Echols	33,742	33,742	--	Paulding	31,130	28,704	2,426
Effingham	61,299	54,190	7,109	Peach	11,382	10,231	1,151
Elbert	52,091	47,570	4,521	Pickens	16,861	15,382	1,479
Emanuel	59,090	57,331	1,759	Pierce	58,779	57,509	1,270
Evans	22,190	19,690	2,500	Pike	2,593	2,328	265
Fannin	18,018	9,556	8,462	Polk	28,335	27,238	1,097
Fayette	3,514	3,451	63	Pulaski	18,939	14,683	4,256
Floyd	21,329	20,613	716	Putnam	29,475	24,340	5,135
Forsyth	3,503	3,503	--				
Franklin	23,473	17,277	6,196				
Fulton	26,471	26,225	246				

Table 10.--Round pulpwood production in Georgia, 1971 (Continued)

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Quitman	10,717	9,613	1,104
Rabun	9,765	3,618	6,147
Randolph	50,846	39,114	11,732
Richmond	46,693	43,233	3,460
Rockdale	944	944	--
Schley	18,890	18,427	463
Screven	24,192	18,933	5,259
Seminole	20,142	17,634	2,508
Spalding	9,650	9,199	451
Stephens	10,862	5,313	5,549
Stewart	83,079	77,272	5,807
Sumter	18,678	17,239	1,439
Talbot	50,965	47,314	3,651
Taliaferro	11,868	9,473	2,395
Tattnall	49,942	46,738	3,204
Taylor	20,549	17,668	2,881
Telfair	67,697	59,199	8,498
Terrell	32,541	32,153	388
Thomas	66,930	52,369	14,561
Tift	17,149	15,547	1,602
Toombs	32,374	30,444	1,930
Towns	1,235	1,086	149
Treutlen	19,173	18,673	500
Troup	73,185	65,316	7,869
Turner	14,360	14,360	--
Twiggs	27,669	23,241	4,428
Union	7,895	5,866	2,029
Upson	24,469	22,536	1,933
Walker	18,060	15,926	2,134
Walton	11,770	9,674	2,096
Ware	173,872	173,512	360
Warren	15,151	12,943	2,208
Washington	56,093	42,388	13,705
Wayne	146,736	138,726	8,010
Webster	25,551	23,514	2,037
Wheeler	30,614	26,774	3,840
White	1,831	1,831	--
Whitfield	14,792	14,103	689
Wilcox	40,217	39,218	999
Wilkes	64,903	57,949	6,954
Wilkinson	74,334	58,603	15,731
Worth	37,568	36,845	723
All counties	5,720,910	5,116,574	604,336

Table 11.--Round pulpwood production in Louisiana, 1971

Parish ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -			
Acadia	8,678	8,511	167
Allen	105,945	98,276	7,669
Ascension	11,354	2,256	9,098
Avoyelles	23,746	5,611	18,135
Beauregard	171,864	169,474	2,390
Bienville	135,764	108,626	27,138
Bossier	92,991	69,435	23,556
Caddo	36,662	27,796	8,866
Calcasieu	49,463	49,310	153
Caldwell	45,742	31,348	14,394
Cameron	3	3	--
Catahoula	49,276	15,890	33,386
Claiborne	103,029	70,561	32,468
Concordia	11,567	43	11,524
De Soto	113,142	99,751	13,391
East Baton Rouge	3,841	193	3,648
East Carroll	15,327	6	15,321
East Feliciana	20,600	14,125	6,475
Evangeline	26,952	22,398	4,554
Franklin	1,396	208	1,188
Grant	102,660	63,672	38,988
Iberville	3,046	36	3,010
Jackson	79,582	61,795	17,787
Jefferson	6	6	--
Jefferson Davis	10,973	10,393	580
Ia Salle	94,116	78,718	15,398
Lincoln	82,804	66,721	16,083
Livingston	95,688	65,886	29,802
Madison	18,258	--	18,258
Morehouse	57,505	30,828	26,677
Natchitoches	134,076	92,025	42,051
Ouachita	60,027	43,086	16,941
Pointe Coupee	32,427	1,625	30,802
Rapides	164,754	119,016	45,738
Red River	38,288	28,185	10,103
Richland	6,401	412	5,989
Sabine	196,190	153,213	42,977
St. Helena	69,795	56,341	13,454
St. John the Baptist	160	--	160
St. Landry	14,574	2,191	12,383
St. Martin	40	--	40
St. Tammany	42,649	40,085	2,564
Tangipahoa	52,697	48,377	4,320
Tensas	18,806	9	18,797
Terrebonne	4	4	--
Union	190,809	140,567	50,242
Vermilion	8	8	--
Vernon	210,228	197,111	13,117
Washington	129,366	108,196	21,170
Webster	57,521	46,712	10,809
West Baton Rouge	1,551	--	1,551
West Carroll	416	10	406
West Feliciana	4,528	1,064	3,464
Winn	167,618	98,216	69,402
All parishes	3,164,913	2,348,329	816,584

^{1/} Parishes with no pulpwood production are omitted.

Table 12.--Round pulpwood production in Mississippi, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Adams	33,063	1,114	31,949	Leflore	2,107	644	1,463
Alcorn	16,256	13,027	3,229	Lincoln	79,569	66,693	12,876
Amite	103,894	94,320	9,574	Lowndes	13,489	12,108	1,381
Attala	101,877	79,484	22,393	Madison	32,256	19,999	12,257
Benton	13,548	10,779	2,769	Marion	70,536	53,383	17,153
Bolivar	9,244	--	9,244	Marshall	19,866	14,818	5,048
Calhoun	8,096	7,176	920	Monroe	14,394	11,164	3,230
Carroll	12,161	6,834	5,327	Montgomery	35,333	27,876	7,457
Chickasaw	24,335	21,505	2,830	Neshoba	62,728	47,160	15,568
Choctaw	30,902	19,325	11,577	Newton	83,279	58,385	24,894
Claiborne	39,548	11,944	27,604	Noxubee	34,549	20,678	13,871
Clarke	162,728	112,917	49,811	Oktibbeha	12,031	8,753	3,278
Clay	6,335	4,390	1,945	Panola	8,033	1,848	6,185
Coahoma	9,724	--	9,724	Pearl River	79,591	64,103	15,488
Copiah	116,729	88,718	28,011	Perry	58,392	49,599	8,793
Covington	66,521	51,774	14,747	Pike	82,274	68,122	14,152
De Soto	23	23	--	Pontotoc	9,966	7,566	2,400
Forrest	45,793	37,263	8,530	Prentiss	21,833	20,327	1,506
Franklin	45,169	25,788	19,381	Rankin	83,420	62,241	21,179
George	51,816	43,359	8,457	Scott	47,682	39,352	8,330
Greene	79,346	53,819	25,527	Sharkey	5,439	32	5,407
Grenada	7,041	5,596	1,445	Simpson	73,681	59,653	14,028
Hancock	53,746	47,029	6,717	Smith	30,798	21,718	9,080
Harrison	77,533	73,709	3,824	Stone	88,653	72,112	16,541
Hinds	32,377	13,115	19,262	Tallahatchie	3,177	1,262	1,915
Holmes	50,091	29,224	20,867	Tate	6,533	158	6,375
Humphreys	4,381	--	4,381	Tippah	24,164	21,452	2,712
Issaquena	17,466	--	17,466	Tishomingo	48,508	39,636	8,872
Itawamba	43,163	39,480	3,683	Tunica	103	--	103
Jackson	77,080	72,899	4,181	Union	11,357	9,417	1,940
Jasper	134,446	113,331	21,115	Walthall	60,337	48,059	12,278
Jefferson	70,713	23,934	46,779	Warren	25,982	1,183	24,799
Jefferson Davis	49,075	42,664	6,411	Washington	12,175	--	12,175
Jones	98,289	69,727	28,562	Wayne	101,318	77,270	24,048
Kemper	66,250	45,186	21,064	Webster	43,377	39,695	3,682
Lafayette	14,732	9,994	4,738	Wilkinson	59,644	19,729	39,915
Lamar	62,787	52,959	9,828	Winston	54,421	41,263	13,158
Lauderdale	100,423	68,806	31,617	Yalobusha	23,594	16,176	7,418
Lawrence	54,244	50,271	3,973	Yazoo	12,830	2,045	10,785
Leake	66,236	52,430	13,806	All counties	3,599,839	2,624,614	975,225
Lee	5,259	5,022	237				

^{1/} Counties with no pulpwood production are omitted.

Table 13.--Round pulpwood production in North Carolina, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Alamance	13,507	6,476	7,031	Lenoir	26,617	23,425	3,192
Alexander	8,670	8,328	342	Lincoln	9,948	6,595	3,353
Anson	75,152	43,241	31,911	McDowell	18,937	9,671	9,266
Avery	1,337	--	1,337	Macon	10,194	1,931	8,263
Beaufort	214,971	160,451	54,520	Madison	8,048	2,484	5,564
Bertie	51,428	23,430	27,998	Martin	53,481	40,047	13,434
Bladen	52,011	39,403	12,608	Mecklenburg	15,483	10,159	5,324
Brunswick	90,611	72,688	17,923	Mitchell	2,342	466	1,876
Buncombe	37,670	12,555	25,115	Montgomery	24,331	13,312	11,019
Burke	36,839	23,219	13,620	Moore	37,434	25,945	11,489
Cabarrus	12,338	6,256	6,082	Nash	31,814	16,454	15,360
Caldwell	12,649	9,577	3,072	New Hanover	16,650	12,860	3,790
Camden	6,779	2,372	4,407	Northampton	44,796	16,783	28,013
Carteret	35,260	28,375	6,885	Onslow	79,510	64,294	15,216
Caswell	10,066	3,791	6,275	Orange	30,920	18,928	11,992
Catawba	7,190	5,693	1,497	Pamlico	29,357	22,555	6,802
Chatham	49,440	28,909	20,531	Pasquotank	7,733	3,521	4,212
Cherokee	33,078	17,534	15,544	Pender	54,997	41,138	13,859
Chowan	5,856	2,771	3,085	Perquimans	13,744	3,528	10,216
Clay	4,031	3,584	447	Person	29,821	16,093	13,728
Cleveland	11,871	9,217	2,654	Pitt	17,541	13,656	3,885
Columbus	79,151	57,801	21,350	Polk	2,189	2,185	4
Craven	78,298	60,140	18,158	Randolph	29,006	13,097	15,909
Cumberland	36,671	25,916	10,755	Richmond	54,826	40,997	13,829
Currituck	4,146	1,052	3,094	Robeson	32,202	22,517	9,685
Dare	4,410	4,105	305	Rockingham	27,892	17,164	10,728
Davidson	14,017	10,480	3,537	Rowan	8,492	6,376	2,116
Davie	11,463	7,454	4,009	Rutherford	36,057	21,840	14,217
Duplin	54,206	35,306	18,900	Sampson	67,888	49,511	18,377
Durham	23,576	14,447	9,129	Scotland	76,925	71,989	4,936
Edgecombe	12,780	6,760	6,020	Stanly	19,348	10,836	8,512
Forsyth	8,641	6,587	2,054	Stokes	5,856	5,212	644
Franklin	58,130	33,306	24,824	Surry	19,370	16,197	3,173
Gaston	10,408	6,331	4,077	Swain	6,477	3,783	2,694
Gates	27,141	13,182	13,959	Transylvania	28,618	2,098	26,520
Graham	648	--	648	Tyrrell	52,522	36,278	16,244
Granville	32,537	19,508	13,029	Union	35,961	18,452	17,509
Greene	10,720	6,925	3,795	Vance	5,412	2,867	2,545
Guilford	10,493	6,445	4,048	Wake	41,861	24,265	17,596
Halifax	46,435	31,976	14,459	Warren	78,864	58,286	20,578
Harnett	10,071	3,994	6,077	Washington	19,552	13,644	5,908
Haywood	11,414	1,642	9,772	Wayne	15,269	10,305	4,964
Henderson	23,740	7,205	16,535	Wilkes	16,562	8,949	7,613
Hertford	22,673	10,013	12,660	Wilson	7,917	3,939	3,978
Hoke	32,097	27,546	4,551	Yadkin	6,272	5,629	643
Hyde	49,629	38,823	10,806	Yancey	147	60	87
Iredell	25,584	19,985	5,599				
Jackson	20,600	2,501	18,099				
Johnston	14,135	4,479	9,656				
Jones	51,722	44,711	7,011				
Lee	11,998	7,310	4,688	All counties	2,827,471	1,854,121	973,350

^{1/} Counties with no pulpwood production are omitted.

Table 14.--Round pulpwood production in Oklahoma, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Alfalfa	2,392	--	2,392	Latimer	591	591	--
Beckham	673	--	673	Le Flore	7,169	6,469	700
Blaine	2,196	--	2,196	Lincoln	396	--	396
Caddo	781	--	781	Love	210	--	210
Canadian	22	--	22	McCurtain	47,617	35,502	12,115
Choctaw	4,268	2,672	1,596	McIntosh	1,446	--	1,446
Cleveland	70	--	70	Okfuskee	962	--	962
Creek	1,446	--	1,446	Oklahoma	1,385	--	1,385
Custer	70	--	70	Pittsburg	955	--	955
Dewey	2,780	--	2,780	Pushmataha	10,976	8,944	2,032
Hughes	182	--	182	Wagoner	1,446	--	1,446
Jefferson	226	--	226	Washington	1,507	--	1,507
Kiowa	724	--	724	Washita	1,055	--	1,055
				All counties	91,545	54,178	37,367

^{1/} Counties with no pulpwood production are omitted.

Table 15.--Round pulpwood production in South Carolina, 1971

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Abbeville	36,872	29,949	6,923	Jasper	37,037	33,573	3,464
Aiken	43,856	37,090	6,766	Kershaw	119,892	101,084	18,808
Allendale	21,977	17,473	4,504	Lancaster	48,873	32,713	16,160
Anderson	33,182	20,545	12,637	Laurens	50,617	33,821	16,796
Bamberg	22,691	16,873	5,818	Lee	23,076	18,712	4,364
Barnwell	29,978	24,652	5,326	Lexington	24,890	18,764	6,126
Beaufort	11,711	9,679	2,032	McCormick	82,554	68,412	14,142
Berkeley	73,196	56,069	17,127	Marion	43,176	22,029	21,147
Calhoun	8,100	7,900	200	Marlboro	40,822	17,066	23,756
Charleston	40,415	29,183	11,232	Newberry	99,516	86,196	13,320
Cherokee	15,162	13,116	2,046	Oconee	40,415	20,650	19,765
Chester	91,038	71,040	19,998	Orangeburg	55,391	38,107	17,284
Chesterfield	71,817	51,750	20,067	Pickens	19,503	16,272	3,231
Clarendon	62,119	49,810	12,309	Richland	58,430	45,627	12,803
Colleton	75,207	56,651	18,556	Saluda	47,181	34,849	12,332
Darlington	39,983	21,132	18,851	Spartanburg	30,355	21,922	8,433
Dillon	32,124	21,176	10,948	Sumter	38,341	28,040	10,301
Dorchester	23,680	18,624	5,056	Union	53,575	44,536	9,039
Edgefield	61,077	48,556	12,521	Williamsburg	85,733	61,849	23,884
Fairfield	159,499	132,038	27,461	York	61,178	43,936	17,242
Florence	36,098	19,721	16,377	All counties	2,376,133	1,801,246	574,887
Georgetown	120,667	95,058	25,609				
Greenville	16,997	15,397	1,600				
Greenwood	63,026	51,400	11,626				
Hampton	44,197	35,786	8,411				
Horry	80,909	62,420	18,489				

Table 16.--Round pulpwood production in Tennessee, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Anderson	4,281	1,835	2,446	Knox	5,323	3,747	1,576
Benton	18,508	2,416	16,092	Lawrence	111	106	5
Bledsoe	9,244	6,473	2,771	Lewis	305	96	209
Blount	11,693	9,015	2,678	Loudon	5,768	1,738	4,030
Bradley	16,896	15,404	1,492	McMinn	25,891	22,639	3,252
Campbell	8,567	3,310	5,257	McNairy	10,929	9,530	1,399
Carroll	579	143	436	Madison	37	20	17
Carter	3,659	--	3,659	Marion	133	75	58
Chester	1,726	1,610	116	Meigs	11,714	5,930	5,784
Claiborne	80	--	80	Monroe	22,601	14,375	8,226
Cocke	9,711	4,977	4,734	Morgan	19,936	4,885	15,051
Coffee	2,607	2,607	--	Obion	448	--	448
Cumberland	22,615	5,152	17,463	Perry	159	58	101
Decatur	1,436	1,278	158	Polk	10,905	7,619	3,286
Dickson	498	--	498	Putnam	11,780	3,831	7,949
Fayette	407	396	11	Rhea	20,790	6,376	14,414
Fentress	5,590	3,396	2,194	Roane	13,258	7,659	5,599
Gibson	138	--	138	Scott	18,599	3,529	15,070
Giles	4,216	2,265	1,951	Sequatchie	3,608	1,437	2,171
Grainger	374	--	374	Sevier	825	652	173
Greene	3,127	652	2,475	Stewart	165	--	165
Grundy	2,461	2,461	--	Sullivan	5,435	--	5,435
Hamblen	109	109	--	Tipton	2,922	--	2,922
Hamilton	13,702	7,111	6,591	Unicoi	3,948	--	3,948
Hancock	500	--	500	Union	1,991	1,014	977
Hardeman	11,157	6,731	4,426	Warren	1,831	1,643	188
Hardin	18,141	8,268	9,873	Washington	1,557	--	1,557
Hawkins	2,473	--	2,473	Wayne	21,803	11,952	9,851
Haywood	4	--	4	Weakley	4,379	33	4,346
Henderson	1,321	1,145	176				
Henry	5,914	89	5,825				
Hickman	11,783	--	11,783				
Houston	2,550	--	2,550				
Humphreys	48,127	7	48,120				
Jefferson	22	--	22				
Johnson	4,335	--	4,335	All counties	475,702	195,794	279,908

^{1/} Counties with no pulpwood production are omitted.

Table 17.--Round pulpwood production in Texas, 1971

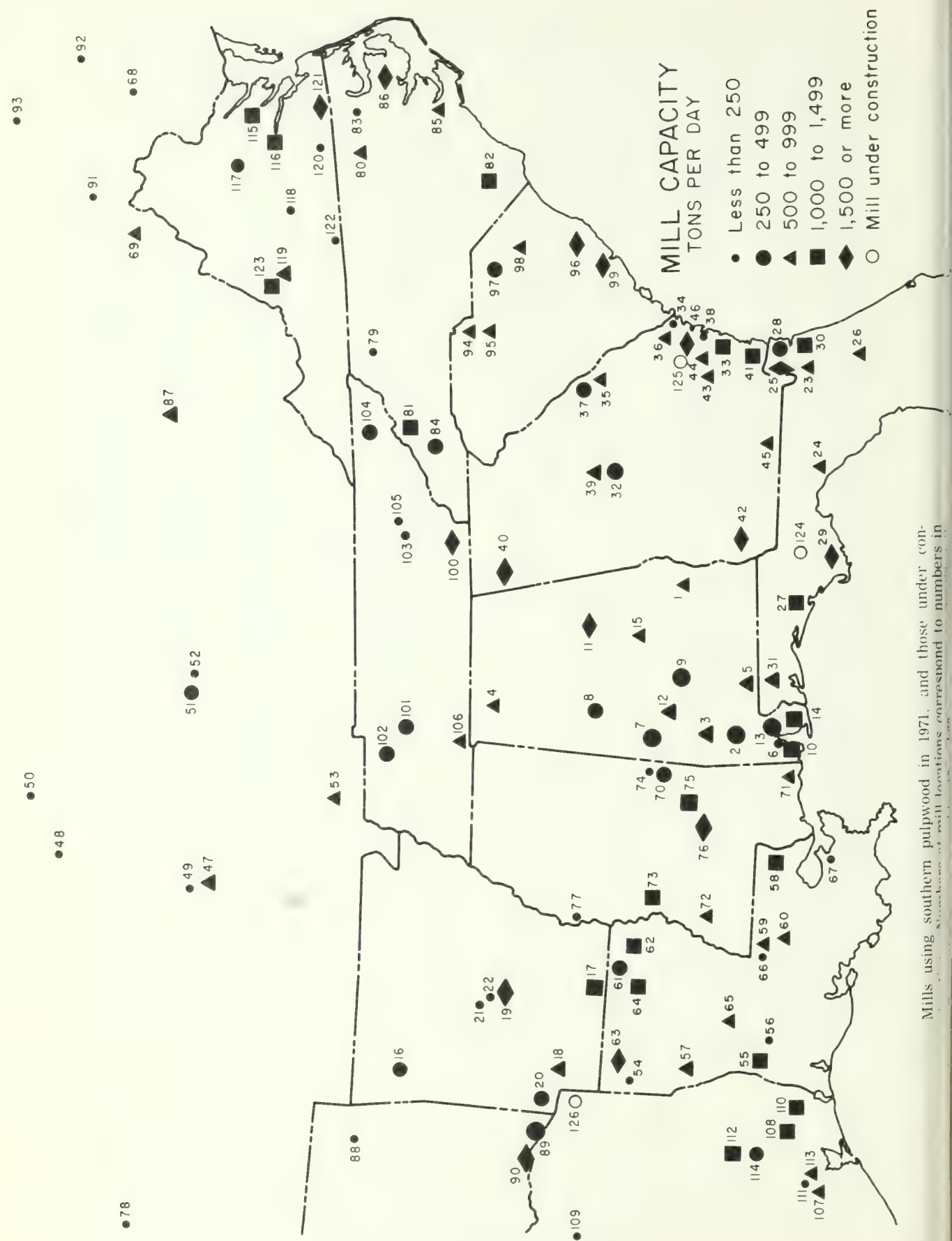
County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Anderson	26,212	25,128	1,084	Marion	57,432	49,398	8,034
Angelina	81,317	76,683	4,634	Montgomery	89,066	74,736	14,330
Austin	72	--	72	Morris	11,375	9,822	1,553
Bowie	39,030	32,752	6,278	Nacogdoches	121,296	109,138	12,158
Brazoria	1,154	--	1,154	Newton	108,667	75,798	32,869
Brazos	227	--	227	Orange	39,631	35,407	4,224
Burleson	496	--	496	Panola	111,583	106,330	5,253
Camp	5,386	5,179	207	Polk	140,851	126,967	13,884
Cass	51,200	45,585	5,615	Red River	11,846	11,828	18
Chambers	1,405	1,273	132	Rusk	52,202	50,183	2,019
Cherokee	56,365	48,250	8,115	Sabine	46,527	40,504	6,023
Fort Bend	143	--	143	San Augustine	78,717	73,398	5,319
Franklin	8,665	5,898	2,767	San Jacinto	48,584	42,436	6,148
Gregg	26,573	26,315	258	Shelby	118,162	112,801	5,361
Grimes	8,533	7,951	582	Smith	27,759	27,759	--
Hardin	98,199	71,903	26,296	Titus	10,994	10,987	7
Harris	31,893	26,263	5,630	Trinity	111,974	101,336	10,638
Harrison	73,008	71,412	1,596	Tyler	107,181	75,452	31,729
Hopkins	41	41	--	Upshur	52,870	52,851	19
Houston	63,051	58,958	4,093	Walker	44,349	38,792	5,557
Jasper	141,767	110,769	30,998	Waller	1,785	1,447	338
Jefferson	1,813	1,264	549	Wood	10,004	7,411	2,593
Leon	2,000	2,000	--	All counties	2,177,208	1,883,864	293,344
Liberty	55,803	31,459	24,344				

^{1/} Counties with no pulpwood production are omitted.

Table 18.--Round pulpwood production in Virginia, 1971

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Accomack	22,126	22,126	--	Lancaster	5,337	5,297	40
Albemarle	27,248	8,891	18,357	Lee	616	--	616
Alleghany	26,515	4,251	22,264	Loudoun	4	4	--
Amelia	19,962	14,295	5,667	Louisa	19,285	10,088	9,197
Amherst	29,683	8,420	21,263	Lunenburg	30,988	17,927	13,061
Appomattox	41,294	15,532	25,762	Madison	475	83	392
Arlington	3	--	3	Mathews	442	402	40
Augusta	21,473	2,777	18,696	Mecklenburg	33,033	16,306	16,727
Bath	30,232	3,323	26,909	Middlesex	4,535	3,626	909
Bedford	46,601	15,227	31,374	Montgomery	234	181	53
Bland	584	287	297	Nansemond	18,362	8,631	9,731
Botetourt	30,491	3,687	26,804	Nelson	32,115	13,684	18,431
Brunswick	91,111	57,781	33,330	New Kent	14,083	9,544	4,539
Buchanan	10	--	10	Newport News	886	794	92
Buckingham	84,194	19,136	65,058	Northampton	2,674	2,666	8
Campbell	56,890	28,173	28,717	Northumberland	2,970	2,961	9
Caroline	17,585	17,056	529	Nottoway	20,263	11,427	8,836
Carroll	2,738	1,100	1,638	Orange	5,097	2,796	2,301
Charles City	24,968	10,788	14,180	Page	1,074	939	135
Charlotte	62,253	30,318	31,935	Patrick	3,702	2,705	997
Chesapeake	3,424	557	2,867	Pittsylvania	61,734	45,900	16,034
Chesterfield	26,035	19,405	6,630	Powhatan	13,348	5,297	8,051
Craig	14,802	2,419	12,383	Prince Edward	53,866	31,879	21,987
Culpeper	5,548	5,426	122	Prince George	45,089	25,331	19,758
Cumberland	13,043	2,146	10,897	Prince William	9,944	9,822	122
Dinwiddie	40,599	24,157	16,442	Pulaski	516	309	207
Essex	12,922	11,683	1,239	Rappahannock	86	40	40
Fairfax	99	92	7	Richmond	7,222	7,133	89
Fauquier	14,054	12,031	2,023	Roanoke	3,229	663	2,566
Floyd	550	289	261	Rockbridge	50,111	7,799	42,312
Fluvanna	16,910	12,266	4,644	Rockingham	4,477	2,595	1,882
Franklin	21,918	12,516	9,402	Russell	234	--	234
Frederick	7,341	6,278	1,063	Scott	3,863	--	3,863
Giles	253	45	208	Shenandoah	5,595	2,603	2,992
Gloucester	14,548	9,933	4,615	Smyth	2,970	--	2,970
Goochland	25,876	17,095	8,781	Southampton	47,682	17,164	30,518
Grayson	5	5	--	Spotsylvania	17,562	13,663	3,899
Greene	2,282	569	1,713	Stafford	1,120	1,097	23
Greensville	53,803	37,116	16,687	Surry	44,168	20,479	23,689
Halifax	20,021	10,324	9,697	Sussex	65,411	32,348	33,063
Hanover	18,125	15,340	2,785	Virginia Beach	973	238	735
Henrico	4,224	3,263	961	Warren	5,682	2,855	2,827
Henry	15,727	12,135	3,592	Washington	7,136	4	7,132
Highland	4,617	470	4,147	Westmoreland	8,700	8,700	--
Isle of Wight	20,826	7,544	13,282	Wise	3,276	--	3,276
James City	7,149	4,336	2,813	Wythe	4,215	1,714	2,501
King and Queen	21,217	15,710	5,507	York	2,151	1,721	430
King George	423	412	11				
King William	22,874	17,669	5,205	All counties	1,711,911	873,820	838,091

^{1/} Counties with no pulpwood production are omitted.



Mills using southern pulpwood in 1971, and those under construction at mill locations correspond to numbers in

Table 19.--Mills using southern pulpwood in 1971, by process and capacity

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
----- Tons -----							
ALABAMA							
Mahrt	(1)	Alabama Kraft Co., Div. Ga. Kraft Co.	975	975	--	--	--
Jackson	(2)	Allied Paper Corp.	470	470	--	--	--
Naheola	(3)	American Can Co.	900	900	--	--	--
Courtland	(4)	Champion International	500	500	--	--	--
Brewton	(5)	Container Corp. of America	800	800	--	--	--
Mobile	(6)	General Aniline and Film Corp.	48	--	48	--	--
Demopolis	(7)	Gulf States Paper Corp.	400	400	--	--	--
Tuscaloosa	(8)	Gulf States Paper Corp.	450	450	--	--	--
Riverdale	(9)	Hammermill Paper Co., Riverdale Div.	400	400	--	--	--
Mobile	(10)	International Paper Co.	1,315	1,015	300	--	--
Coosa Pines	(11)	Kimberly-Clark Corp., Coosa River Newsprint Div.	1,590	650	940	--	--
Pine Hill	(12)	McMillan Bloedel United, Inc.	925	925	--	--	--
Mobile	(13)	National Gypsum Co.	400	--	200	200	--
Mobile	(14)	Scott Paper Co.	1,400	1,400	--	--	--
Montgomery	(15)	Union Camp Corp.	870	870	--	--	--
Total			11,443	9,755	1,488	200	--
ARKANSAS							
Morrilton	(16)	Arkansas Kraft Corp.	380	380	--	--	--
Crossett	(17)	Georgia-Pacific Corp., Crossett Division-Paper	1,220	1,220	--	--	--
Camden	(18)	International Paper Co.	750	750	--	--	--
Pine Bluff	(19)	International Paper Co.	1,700	1,300	400	--	--
Ashdown	(20)	Nekoosa-Edwards Paper Co.	400	400	--	--	--
Little Rock	(21)	Superwood Corp. of Arkansas	140	--	140	--	--
Pine Bluff	(22)	Weyerhaeuser Co., Dierks Div.	150	150	--	--	--
Total			4,740	4,200	540	--	--
FLORIDA							
Jacksonville	(23)	Alton Box Board Co.	625	625	--	--	--
Foley	(24)	The Buckeye Cellulose Corp.	923	923	--	--	--
Fernandina Beach	(25)	Container Corp. of America	1,700	1,700	--	--	--
Palatka	(26)	Hudson Pulp and Paper Corp.	950	950	--	--	--
Panama City	(27)	International Paper Co.	1,375	1,375	--	--	--
Fernandina Beach	(28)	I.T.T. Rayonier Inc.	375	--	--	--	375
Port St. Joe	(29)	St. Joe Paper Co.	1,700	1,700	--	--	--
Jacksonville	(30)	St. Regis Paper Co.	1,400	1,400	--	--	--
Pensacola	(31)	St. Regis Paper Co.	900	900	--	--	--
Total			9,948	9,573	--	--	375
GEORGIA							
Macon	(32)	Armstrong Cork Co.	400	--	400	--	--
Brunswick	(33)	Brunswick Pulp and Paper Co.	1,200	1,200	--	--	--
Savannah	(34)	Certain-teed Products Corp.	65	--	--	65	--
Augusta	(35)	Continental Can Co., Inc.	700	700	--	--	--
Port Wentworth	(36)	Continental Can Co., Inc.	600	600	--	--	--
Augusta	(37)	Cox Newsprint, Inc.	375	--	375	--	--
Savannah	(38)	General Aniline and Film Corp.	48	--	48	--	--
Macon	(39)	Georgia Kraft Co., Mead Div.	850	850	--	--	--
Rome	(40)	Georgia Kraft Co., Krannert Div.	1,600	1,600	--	--	--
St. Marys	(41)	Gilman Paper Co., St. Marys Kraft Div.	1,000	1,000	--	--	--
Cedar Springs	(42)	Great Northern Paper Co., Southern Div.	2,000	1,700	--	300	--
Jesup	(43)	I.T.T. Rayonier Inc.	675	675	--	--	--
Riceboro	(44)	Interstate Paper Corp.	500	500	--	--	--
Valdosta	(45)	Owens-Illinois, Forest Products Div.	875	875	--	--	--
Savannah	(46)	Union Camp Corp.	3,000	2,600	--	400	--
Total			13,888	12,300	823	765	--

Table 19.--Mills using southern pulpwood in 1971, by process and capacity (Continued)

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
			----- Tons -----				
ILLINOIS							
Alton	(47)	Alton Box Board Co.	800	--	--	800	--
Peoria	(48)	The Celotex Corp.	110	--	110	--	--
East St. Louis	(49)	Certain-teed Products Corp.	100	--	100	--	--
Wilmington	(50)	Philip Carey Corp.	150	--	150	--	--
Total			1,160	--	360	800	--
KENTUCKY							
Hawesville	(51)	WesCor Corp.	250	--	--	250	--
Hawesville	(52)	Western Kraft Corp.	200	200	--	--	--
Wickliffe	(53)	Westvaco Corp.	600	600	--	--	--
Total			1,050	800	--	250	--
LOUISIANA							
Shreveport	(54)	Bird and Son, Inc.	60	--	--	60	--
DeRidder	(55)	Boise Southern Co.	1,300	950	350	--	--
Elizabeth	(56)	Calkraft Paper Co., Inc.	240	240	--	--	--
Hodge	(57)	Continental Can Co., Inc.	750	550	--	200	--
Bogalusa	(58)	Crown Zellerbach Corp.	1,435	1,300	--	135	--
St. Francisville	(59)	Crown Zellerbach Corp.	500	500	--	--	--
Port Hudson	(60)	Georgia-Pacific Corp., Crossett Division-Paper	600	600	--	--	--
Bastrop	(61)	International Paper Co. (Bastrop Mill)	485	--	--	485	--
Bastrop	(62)	International Paper Co. (Louisiana Mill)	1,100	1,100	--	--	--
Springhill	(63)	International Paper Co.	1,625	1,625	--	--	--
West Monroe	(64)	Olinkraft, Inc.	1,385	1,135	--	250	--
Pineville	(65)	Pineville Kraft Corp.	750	750	--	--	--
St. Francisville	(66)	St. Francisville Paper Co.	235	--	235	--	--
New Orleans	(67)	Southern Johns-Manville Products Corp.	130	--	130	--	--
Total			10,595	8,750	715	1,130	--
MARYLAND							
Finksburg	(68)	Congoleum Industries Inc.	200	--	--	200	--
Luke	(69)	Westvaco Corp.	743	743	--	--	--
Total			943	743	--	200	--
MISSISSIPPI							
Meridian	(70)	The Flintkote Co.	250	--	200	50	--
Moss Point	(71)	International Paper Co.	725	725	--	--	--
Natchez	(72)	International Paper Co.	950	950	--	--	--
Vicksburg	(73)	International Paper Co.	1,000	1,000	--	--	--
Meridian	(74)	Kroehler Mfg. Co. of Miss., Inc.	80	--	80	--	--
Laurel	(75)	Masonite Corp.	1,200	--	1,200	--	--
Monticello	(76)	St. Regis Paper Co.	1,620	1,620	--	--	--
Greenville	(77)	United States Gypsum Co.	225	--	225	--	--
Total			6,050	4,295	1,705	50	--
MISSOURI							
Kansas City	(78)	General Aniline & Film Corp.	100	--	100	--	--
Total			100	--	100	--	--

Table 19.--Mills using southern pulpwood in 1971, by process and capacity (Continued)

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
----- Tons -----							
NORTH CAROLINA							
Roaring River	(79)	Abitibi Corp.	120	--	120	--	--
Roanoke Rapids	(80)	Albemarle Paper Co.	940	940	--	--	--
Canton	(81)	Champion International	1,325	1,325	--	--	--
Riegelwood	(82)	Federal Paper Board Co. Inc.	1,100	1,100	--	--	--
Conway	(83)	Georgia-Pacific Corp.	200	--	200	--	--
Sylva	(84)	The Mead Corp.	290	--	--	290	--
New Bern	(85)	Weyerhaeuser Co., N. C. Div.	800	800	--	--	--
Plymouth	(86)	Weyerhaeuser Co., N. C. Div.	1,500	1,250	--	250	--
Total			6,275	5,415	320	540	--
OHIO							
Chillicothe	(87)	The Mead Corp.	600	600	--	--	--
Total			600	600	--	--	--
OKLAHOMA							
Pryor	(88)	Georgia-Pacific, Bestwall Gypsum Div.	150	--	150	--	--
Broken Bow	(89)	Weyerhaeuser Co., Dierks Div.	450	--	450	--	--
Valiant	(90)	Weyerhaeuser Co., Dierks Div.	1,600	1,200	--	400	--
Total			2,200	1,200	600	400	--
PENNSYLVANIA							
Roaring Spring	(91)	Appleton Papers Inc.	180	180	--	--	--
Philadelphia	(92)	The Celotex Corp.	160	--	--	160	--
Sunbury	(93)	The Celotex Corp.	150	--	--	150	--
Total			490	180	--	310	--
SOUTH CAROLINA							
Catawba	(94)	Bowaters Carolina Corp.	700	600	100	--	--
Catawba	(95)	Catawba Newsprint Co.	500	--	500	--	--
Georgetown	(96)	International Paper Co.	2,130	1,650	--	480	--
Hartsville	(97)	Sonoco Products Co.	320	--	--	320	--
Florence	(98)	South Carolina Industries, Inc.	600	600	--	--	--
Charleston	(99)	Westvaco Corp.	1,994	1,994	--	--	--
Total			6,244	4,844	600	800	--
TENNESSEE							
Calhoun	(100)	Bowaters Southern Paper Corp.	1,625	500	925	200	--
New Johnsonville	(101)	Inland Container Corp.	450	--	--	450	--
Paris	(102)	The Celotex Corp.	300	--	--	300	--
Harriman	(103)	The Mead Corp.	190	--	--	190	--
Kingsport	(104)	The Mead Corp.	300	--	--	--	300
Knoxville	(105)	Southern Extract Co.	140	--	--	140	--
Counce	(106)	Tennessee River Pulp and Paper Co.	750	750	--	--	--
Total			3,755	1,250	925	1,280	300
TEXAS							
Pasadena	(107)	Champion International	930	850	80	--	--
Evadale	(108)	EasTex, Inc.	1,200	1,200	--	--	--
Dallas	(109)	General Aniline & Film Corp.	50	--	50	--	--
Orange	(110)	Owens-Illinois, Forest Products Div.	1,000	1,000	--	--	--
Houston	(111)	Philip Carey Corp.	25	--	25	--	--
Lufkin	(112)	Southland Paper Mills, Inc.	1,250	400	850	--	--
Sheldon	(113)	Southland Paper Mills, Inc.	860	500	360	--	--
Diboll	(114)	Temple Industries, Fiber Products Div.	350	--	--	350	--
Total			5,665	3,950	1,365	350	--

Table 19.--Mills using southern pulpwood in 1971, by process and capacity (Continued)

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood and other mechanical	Semi- chemical	Soda and sulfite
----- Tons -----							
VIRGINIA							
West Point	(115)	The Chesapeake Corp. of Virginia	1,050	1,050	--	--	--
Hopewell	(116)	Continental Can Co., Inc.	1,100	900	--	200	--
Doswell	(117)	Evans Products Co.	300	--	300	--	--
Lynchburg	(118)	The Mead Corp.	190	--	--	190	--
Big Island	(119)	Owens-Illinois, Forest Products Div.	500	--	--	500	--
Jarratt	(120)	Southern Johns-Manville Products Corp.	200	--	200	--	--
Franklin	(121)	Union Camp Corp.	1,750	1,750	--	--	--
Danville	(122)	United States Gypsum Co.	225	--	225	--	--
Covington	(123)	Westvaco Corp.	1,378	1,095	--	283	--
Total			6,693	4,795	725	1,173	--
All States			91,839	72,650	10,266	8,248	675

^{1/} Corresponds to numbers at locations on mill capacity map, page 16.^{2/} Southern Pulp and Paper Manufacturer, vol. 34, No. 10 (Oct. 1, 1971); and other sources.

Table 20.--Pulpmills under construction in the South

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours
----- Tons -----			
FLORIDA			
Blountstown	(124)	Abitibi Corp.	100
GEORGIA			
Jesup	(125)	I.T.T. Rayonier Inc.	591
TEXAS			
Texarkana	(126)	International Paper Co.	610

^{1/} Corresponds to numbers at locations on mill capacity map, page 16.

Bellamy, Thomas R.

1972. Southern pulpwood production, 1971. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-23, 20 pp.

In 1971, pulpwood production in the South totaled 41,913,816 cords--67 percent of the Nation's total. The region's production was down slightly (about 1 percent from the previous year) for the first time in 13 years. During the year, two new mills began production and 20 others increased their capacities. These expansions boosted daily pulping capacity in the region by 5 percent, to 87,496 tons. At the end of the year there were 109 pulpmills in the region, with three more under construction.

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FOREST STATISTICS for North Central Georgia 1972

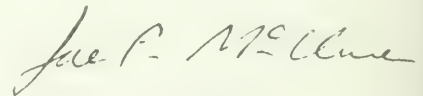
FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in North Central Georgia. The survey was started in February and completed in July 1972. Findings of the previous surveys, completed in 1936, 1953, and 1961, provide the basis for measuring changes that have occurred and trends that have developed over the past 36 years. This report primarily emphasizes the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing, nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and ascertain rates of timber growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 32-county area covered by this report is one of five Survey Units in Georgia. Similar reports, USDA Forest Service Resource Bulletins SE-19, SE-21, and SE-22, have been issued for Southwest Georgia, Southeast Georgia, and Central Georgia, and a similar report is planned for North Georgia when that Unit is completed. The survey will provide updated statistics on the timber resource for all of Georgia when completed.

The Southeastern Station gratefully acknowledges the cooperation and assistance of the Georgia Forestry Commission and of forest industry in the collection of field data.



JOE P. McCLURE
Project Leader

**Forest Statistics
for
North Central Georgia
1972**

**by
Herbert A. Knight, Resource Analyst**

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HIGHLIGHTS

Since 1961 in North Central Georgia--

- area of commercial forest land has decreased by 85,000 acres, or only 2 percent. This small net change in the forest base, however, masks a substantial amount of land-use change. During this 11-year period, 373,000 acres were diverted from commercial forest to other land uses, and 288,000 acres of new forest land were added. About 58 percent of the diversion was to urban development, and most of the remaining diversion was to agricultural uses. Commercial forests currently occupy 4 million acres, or 64 percent of the total land in this 32-county area.
- there has been less forestry activity than in any of the other three Forest Survey Units completed. Although there are some 250,000 acres in plantations, natural stands make up more than 90 percent of the commercial forests. More than half the plantations were established prior to 1961. Three out of every 5 acres now classified as commercial forest showed no evidence of treatment or disturbance over the 11-year remeasurement period. Approximately 35 percent of the total area of commercial forest has either been harvested, thinned, cleaned, or artificially regenerated. Another 5 percent has been significantly disturbed by insects, disease, wildfire, or other damaging agent.
- almost 25 percent of the growing-stock timber removed from the inventory through man's action was not utilized for products. More than 85 percent of this unused timber was removed in conjunction with land clearing or other land-use changes.
- the ownership of more than 1 million acres of commercial forest land has shifted from the farmer to the miscellaneous private class. There has been little change in the total number of acres owned and leased by forest industries. These industries own some 406,200 acres and have another 54,500 acres under long-term lease. Less than 2 percent of the commercial forest land is publicly owned.
- average basal area of all live trees 5 inches d.b.h. and larger has increased from 41 to 63 square feet per acre of commercial forest land. There are also about 645 sapling-size trees per acre, 50 more than in 1961. Only 12 percent of the commercial forest land is less than 60 percent stocked with growing-stock trees.
- volume of softwood growing stock has increased from less than 1.4 to more than 2.4 billion cubic feet, or by 76 percent. In fact, loblolly pine, the predominant species in North Central Georgia, has more than doubled in volume and the volume of shortleaf pine is up by about 22 percent. The increase in softwood volume occurred across the range of diameter classes. The current inventory of softwood growing stock includes 6.7 billion board feet of sawtimber, almost double the amount in 1961.

--volume of hardwood growing stock has increased from about 1.3 to more than 1.8 billion cubic feet, or by 39 percent. Practically all this increase was in oak, sweetgum, and yellow-poplar. There has not been significant increase in the volume of ash, hickory, or maple. Again, the increase in volume occurred across the range of diameters. The current inventory of hardwood growing stock includes 4.5 billion board feet of sawtimber, up by 36 percent.

In 1971--

- net growth of growing stock averaged 79 cubic feet per acre of commercial forest land and totaled 317 million cubic feet. This was a record high average growth per acre for an entire Forest Survey Unit in the Southeast. Almost one-fourth of this growth is attributed to ingrowth; therefore, the area might not sustain this high average growth over time. More than 71 percent of the total net growth was softwood. The net growth of all species included 949 million board feet of sawtimber.
- removals of growing stock totaled 152 million cubic feet, which was only about one-half of the net growth. Net growth exceeded removals on all ownership classes. Almost 70 percent of the timber removals was pine, and the removals of all species included 512 million board feet of sawtimber. Pulpwood production totaled 784,000 cords, down slightly from the record 817,000 cords produced in 1970.
- mortality of growing stock totaled 28 million cubic feet and reduced gross growth by 8 percent. Suppression, disease, weather, insects, and beavers were the leading causes of death; only 2 percent of the mortality was directly attributed to wildfire. About 65 percent of the mortality was softwood. Total mortality included 62 million board feet of sawtimber.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 21,401 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 1,404 of these 16-point clusters was ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 881 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5 inches d.b.h. were tallied on fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on the trees tallied at one out of every 20 sample locations in North Central Georgia, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same 5-percent subsample of plots used for the tree-volume study in North Central Georgia also served as a quality control of field measurements.
4. Felled trees were measured at 12 active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 918 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	1.23
Per billion cubic feet of growing stock - - - - -	4.76
Per billion cubic feet of net annual growth - - - - -	1.43
Per billion cubic feet of annual removals - - - - -	2.89

Sampling errors for county and unit totals, ^{1/} in terms of
one standard error

County	Commercial forest area	Cubic-foot volume of growing stock		
		Inventory	Growth	Removals
- - - - - Sampling error ^{2/} - - - - -				
Banks	2.62	14.46	19.67	43.55
Barrow	8.41	22.42	20.38	44.77
Carroll	2.49	10.07	14.11	40.14
Clarke	10.57	20.60	19.13	70.78
Clayton	5.23	19.74	26.28	48.41
Cobb	5.77	12.65	14.25	47.95
Coweta	1.27	10.16	9.46	26.18
De Kalb	9.40	15.17	16.36	50.99
Douglas	2.55	11.34	13.84	64.73
Elbert	1.99	11.83	11.41	35.22
Fayette	2.49	10.78	12.89	28.04
Forsyth	3.00	17.55	17.40	34.62
Franklin	4.43	16.59	11.84	54.63
Fulton	4.16	8.62	9.08	39.92
Gwinnett	2.57	8.91	10.49	33.15
Hall	4.44	12.77	12.73	31.02
Haralson	2.12	11.47	18.43	34.46
Hart	6.51	14.02	20.50	74.50
Heard	1.22	10.51	14.99	33.43
Henry	2.83	11.94	15.32	30.89
Jackson	3.51	12.92	14.02	38.48
Madison	3.70	12.47	13.52	45.51
Meriwether	1.31	10.00	9.31	33.43
Newton	2.96	12.22	13.92	51.38
Oconee	3.40	12.32	10.96	69.08
Oglethorpe	1.98	10.03	9.94	31.91
Paulding	2.56	13.67	13.59	29.51
Polk	4.16	13.28	14.61	40.82
Rockdale	7.29	23.94	21.33	70.30
Spalding	3.02	9.97	12.41	31.26
Troup	1.60	10.03	9.14	27.18
Walton	3.95	13.58	13.45	33.14
Total	0.62	2.30	2.54	7.41

1/ Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(\text{SE}) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: e = Sampling error of the volume or area total in question.

SE = Specified sampling error in table.

2/ By random-sampling formula (in percent).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ₁ /
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

1/ Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.6	61.0	68.2	60.0
8	68.3	68.1	76.0	68.4
10	73.2	73.1	81.4	73.4
12	76.5	76.7	85.2	76.4
14	78.9	79.4	88.2	78.4
16	80.6	81.6	--	79.8
18	81.8	83.3	--	80.8
20	82.5	84.8	--	81.5
22	82.9	86.0	--	82.1
24+	83.6	87.8	--	83.1
Average	72.4	71.8	73.8	73.2

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in North Central Georgia was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have a limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1972

County	All land ^{1/}	Forest land			Nonforest land ^{2/}	
		Total	Commercial forest	Unproductive forest		Productive-reserved
----- Thousand acres -----						
Banks	147.8	105.0	105.0	--	--	42.8
Barrow	109.4	54.7	53.4	--	1.3	54.7
Carroll	316.2	200.7	200.7	--	--	115.5
Clarke	80.0	41.3	41.3	--	--	38.7
Clayton	94.6	49.3	49.3	--	--	45.3
Cobb	221.2	125.7	123.1	--	2.6	95.5
Coweta	283.3	202.8	202.8	--	--	80.5
De Kalb	172.2	59.8	58.0	--	1.8	112.4
Douglas	129.3	97.6	97.6	--	--	31.7
Elbert	231.9	160.7	160.0	--	0.7	71.2
Fayette	127.1	78.8	78.8	--	--	48.3
Forsyth	141.2	88.9	88.9	--	--	52.3
Franklin	171.0	92.9	92.2	--	0.7	78.1
Fulton	339.7	181.4	181.4	--	--	158.3
Gwinnett	279.1	188.2	188.2	--	--	90.9
Hall	256.5	153.1	153.1	--	--	103.4
Haralson	182.2	144.5	144.5	--	--	37.7
Hart	150.3	54.8	54.7	--	0.1	95.5
Heard	193.3	161.0	161.0	--	--	32.3
Henry	211.7	136.1	136.1	--	--	75.6
Jackson	215.7	144.3	144.3	--	--	71.4
Madison	179.8	105.8	105.8	--	--	74.0
Meriwether	319.3	235.6	235.6	--	--	83.7
Newton	174.5	106.2	106.2	--	--	68.3
Oconee	119.0	71.3	71.3	--	--	47.7
Oglethorpe	278.4	220.7	220.5	--	0.2	57.7
Paulding	203.5	165.8	165.8	--	--	37.7
Polk	199.7	128.4	128.4	--	--	71.3
Rockdale	81.9	53.7	53.7	--	--	28.2
Spalding	128.2	71.8	71.8	--	--	56.4
Troup	286.0	211.2	211.2	--	--	74.8
Walton	211.2	114.6	114.5	--	0.1	96.6
Total	6,235.2	4,006.7	3,999.2	--	7.5	2,228.5

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 61,400 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

Table 2.--Area of commercial forest land, by ownership class and county, 1972

County	All ownerships	Ownership class									
		National		Miscellaneous		State	County and		Forest	Miscellaneous private	
		Forest	Forest	Federal	Miscellaneous		municipal	industry		Farmer	Corporate : Individual
							Thousand acres				
Banks	105.0	0.4	--	--	--	--	--	6.5	58.0	--	40.1
Barrow	53.4	--	--	--	--	--	(1/)	0.5	34.0	--	18.9
Carroll	200.7	--	--	--	--	(1/)	0.1	29.4	90.4	--	80.8
Clarke	41.3	--	--	--	--	1.7	0.1	--	--	--	35.6
Clayton	49.3	--	--	--	--	--	(1/)	0.6	12.1	3.9	32.3
Cobb	123.1	--	--	--	--	--	0.2	--	12.0	4.1	104.1
Coweta	202.8	--	--	--	--	--	1.1	16.9	45.1	4.0	126.2
De Kalb	58.0	--	--	--	--	0.1	0.5	--	3.0	13.5	24.1
Douglas	97.6	--	--	--	--	0.1	0.1	1.5	27.4	9.2	59.4
Elbert	160.0	--	--	--	--	--	0.1	33.8	58.7	14.7	48.9
Fayette	78.8	--	--	--	--	--	0.1	0.8	47.9	--	30.0
Forsyth	88.9	--	--	--	--	--	--	0.1	33.3	--	50.0
Franklin	92.2	--	--	--	--	--	(1/)	4.0	56.7	8.7	21.8
Fulton	181.4	--	--	--	--	0.2	0.9	3.2	18.2	36.3	122.6
Gwinnett	188.2	--	--	--	--	0.1	0.1	1.5	45.3	18.1	122.3
Hall	153.1	--	--	--	--	--	0.1	6.4	40.2	4.5	93.9
Haralson	144.5	--	--	--	--	--	(1/)	29.9	47.7	--	66.9
Hart	54.7	--	--	--	--	0.7	--	3.2	43.7	--	4.4
Heard	161.0	--	--	--	--	--	--	47.3	32.7	9.3	69.9
Henry	136.1	--	--	--	--	--	--	3.8	89.9	10.6	31.8
Jackson	144.3	--	--	--	--	0.4	(1/)	1.3	43.2	8.7	90.7
Madison	105.8	--	--	--	--	--	(1/)	13.0	44.2	4.4	44.2
Meriwether	235.6	--	--	--	--	3.8	1.6	47.2	62.5	8.9	111.6
Newton	106.2	--	--	--	--	0.2	0.2	1.8	33.1	--	70.9
Oconee	71.3	0.3	0.4	0.4	0.4	0.4	(1/)	3.9	22.1	--	44.2
Oglethorpe	220.5	3.7	0.4	0.4	0.4	0.4	(1/)	85.9	60.9	--	65.2
Paulding	165.8	--	--	--	--	--	0.2	17.2	33.5	--	114.9
Polk	128.4	--	--	--	--	0.1	(1/)	20.6	31.4	--	62.8
Rockdale	53.7	--	--	--	--	--	0.2	0.9	10.5	13.5	26.3
Spalding	71.8	--	--	--	--	0.2	0.3	2.3	25.9	15.8	34.5
Troup	211.2	--	--	--	--	--	0.3	17.0	31.1	8.6	128.8
Walton	114.5	--	--	--	--	(1/)	0.1	5.7	58.9	8.9	45.3
Total	3,999.2	4.4	8.3	52.2	8.3	8.3	6.3	406.2	1,253.6	238.7	2,029.5

1/ Less than 50 acres.

2/ Not including 54,500 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1972

County	All type groups	Forest-type groups					
		Longleaf- slash	Loblolly- shortleaf	Oak- pine	Oak- hickory	Oak-gum- cypress	Elm-ash cottonwood
----- Thousand acres -----							
Banks	105.0	--	51.5	17.8	26.8	--	8.9
Barrow	53.4	--	34.0	7.6	8.0	--	3.8
Carroll	200.7	--	80.2	42.9	63.3	4.8	9.5
Clarke	41.3	--	33.4	--	4.0	3.9	--
Clayton	49.3	--	29.1	4.0	16.2	--	--
Cobb	123.1	--	84.0	32.0	7.1	--	--
Coweta	202.8	--	101.4	41.7	41.7	--	18.0
De Kalb	58.0	--	30.9	3.0	21.1	--	3.0
Douglas	97.6	--	38.0	22.8	32.2	--	4.6
Elbert	160.0	--	71.2	44.4	31.2	13.2	--
Fayette	78.8	--	30.0	30.8	6.0	--	12.0
Forsyth	88.9	--	55.6	16.7	16.6	--	--
Franklin	92.2	--	39.8	26.2	17.5	--	8.7
Fulton	181.4	--	89.5	37.4	40.9	9.1	4.5
Gwinnett	188.2	--	108.7	38.7	36.3	--	4.5
Hall	153.1	--	70.6	42.3	40.2	--	--
Haralson	144.5	--	36.7	42.0	51.5	4.7	9.6
Hart	54.7	--	20.9	7.6	26.2	--	--
Heard	161.0	--	81.4	37.4	37.5	4.7	--
Henry	136.1	--	72.6	21.2	37.0	--	5.3
Jackson	144.3	--	86.9	31.5	12.9	4.3	8.7
Madison	105.8	--	53.1	28.6	19.7	4.4	--
Meriwether	235.6	--	150.5	27.6	26.4	26.8	4.3
Newton	106.2	--	58.5	14.2	24.1	--	9.4
Oconee	71.3	--	37.3	6.3	11.1	--	16.6
Oglethorpe	220.5	4.8	135.5	22.1	18.2	13.5	26.4
Paulding	165.8	4.3	90.6	14.4	56.5	--	--
Polk	128.4	--	59.7	36.6	32.1	--	--
Rockdale	53.7	--	27.4	15.8	10.5	--	--
Spalding	71.8	--	37.3	17.3	8.6	--	8.6
Troup	211.2	--	145.3	26.4	39.5	--	--
Walton	114.5	--	54.5	23.8	18.1	18.1	--
Total	3,999.2	9.1	2,096.1	781.1	839.0	107.5	166.4

Table 4.--Area of commercial forest land, by stand-size class
and county, 1972

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling- seedling	
- - - - - Thousand acres - - - - -					
Banks	105.0	31.2	52.7	16.6	4.5
Barrow	53.4	19.4	22.7	11.3	--
Carroll	200.7	46.6	94.0	56.4	3.7
Clarke	41.3	25.5	11.9	3.9	--
Clayton	49.3	25.1	20.2	4.0	--
Cobb	123.1	55.1	56.0	12.0	--
Coweta	202.8	83.4	69.8	45.1	4.5
De Kalb	58.0	39.9	12.1	6.0	--
Douglas	97.6	32.0	38.2	27.4	--
Elbert	160.0	31.7	79.0	49.3	--
Fayette	78.8	18.1	60.7	--	--
Forsyth	88.9	16.7	61.1	11.1	--
Franklin	92.2	21.8	53.3	17.1	--
Fulton	181.4	87.4	80.4	13.6	--
Gwinnett	188.2	114.8	55.3	18.1	--
Hall	153.1	16.0	103.7	33.4	--
Haralson	144.5	37.2	66.4	31.9	9.0
Hart	54.7	4.4	38.4	11.9	--
Heard	161.0	61.0	62.6	37.4	--
Henry	136.1	49.5	70.7	15.9	--
Jackson	144.3	43.7	44.5	47.5	8.6
Madison	105.8	41.9	48.6	15.3	--
Meriwether	235.6	85.2	119.1	31.3	--
Newton	106.2	19.3	68.0	14.2	4.7
Oconee	71.3	33.4	37.9	--	--
Oglethorpe	220.5	103.2	81.2	36.1	--
Paulding	165.8	47.4	71.5	46.9	--
Polk	128.4	36.6	57.1	34.7	--
Rockdale	53.7	10.5	37.9	5.3	--
Spalding	71.8	26.4	36.8	8.6	--
Troup	211.2	61.9	88.9	56.2	4.2
Walton	114.5	45.3	41.9	27.3	--
Total	3,999.2	1,371.6	1,842.6	745.8	39.2

Table 5.--Area of commercial forest land, by site class and county, 1972

County	All classes	Site class				
		1	2	3	4	5
----- <u>Thousand acres</u> -----						
Banks	105.0	--	--	17.8	82.8	4.4
Barrow	53.4	--	--	8.0	41.6	3.8
Carroll	200.7	--	--	--	168.5	32.2
Clarke	41.3	--	1.7	15.8	23.8	--
Clayton	49.3	--	--	--	33.1	16.2
Cobb	123.1	--	--	28.0	87.1	8.0
Coweta	202.8	--	9.0	87.9	101.4	4.5
De Kalb	58.0	--	--	12.7	45.3	--
Douglas	97.6	--	--	4.6	83.9	9.1
Elbert	160.0	--	--	6.7	148.4	4.9
Fayette	78.8	--	6.0	30.9	41.9	--
Forsyth	88.9	--	--	16.7	50.0	22.2
Franklin	92.2	--	--	40.3	51.9	--
Fulton	181.4	--	4.6	63.6	113.2	--
Gwinnett	188.2	4.5	--	63.4	111.2	9.1
Hall	153.1	--	4.5	16.0	132.6	--
Haralson	144.5	--	--	9.6	115.8	19.1
Hart	54.7	--	--	--	50.3	4.4
Heard	161.0	--	4.6	42.3	109.4	4.7
Henry	136.1	--	5.3	70.7	60.1	--
Jackson	144.3	--	0.5	83.4	56.1	4.3
Madison	105.8	--	--	28.6	72.8	4.4
Meriwether	235.6	--	26.8	88.4	92.8	27.6
Newton	106.2	--	4.7	59.0	37.8	4.7
Oconee	71.3	--	--	31.8	34.0	5.5
Oglethorpe	220.5	--	17.4	76.7	117.7	8.7
Paulding	165.8	--	--	--	142.3	23.5
Polk	128.4	--	--	4.5	101.4	22.5
Rockdale	53.7	--	5.3	11.6	31.6	5.2
Spalding	71.8	--	--	8.6	60.4	2.8
Troup	211.2	--	12.8	40.0	158.4	--
Walton	114.5	--	4.5	46.5	63.5	--
Total	3,999.2	4.5	107.7	1,014.1	2,621.1	251.8

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1972

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
- - - - - Thousand acres - - - - -						
Banks	105.0	--	31.2	57.2	12.1	4.5
Barrow	53.4	7.6	4.3	26.4	15.1	--
Carroll	200.7	--	87.2	87.1	22.7	3.7
Clarke	41.3	--	17.6	19.8	3.9	--
Clayton	49.3	--	12.1	29.1	8.1	--
Cobb	123.1	8.0	47.1	64.0	4.0	--
Coweta	202.8	--	61.9	103.7	32.7	4.5
De Kalb	58.0	3.0	18.8	33.2	3.0	--
Douglas	97.6	6.0	18.3	64.2	9.1	--
Elbert	160.0	--	38.2	98.9	22.9	--
Fayette	78.8	--	48.0	24.8	6.0	--
Forsyth	88.9	0.1	22.2	61.0	5.6	--
Franklin	92.2	--	30.1	49.0	13.1	--
Fulton	181.4	18.2	71.3	87.3	4.6	--
Gwinnett	188.2	--	54.4	106.6	27.2	--
Hall	153.1	--	32.1	98.6	22.4	--
Haralson	144.5	--	18.6	88.7	28.2	9.0
Hart	54.7	3.4	13.1	38.2	--	--
Heard	161.0	14.0	39.4	88.8	18.8	--
Henry	136.1	5.3	31.7	83.2	15.9	--
Jackson	144.3	4.8	30.2	83.4	17.3	8.6
Madison	105.8	8.8	28.6	68.4	--	--
Meriwether	235.6	13.2	84.3	111.6	26.5	--
Newton	106.2	--	28.8	68.0	4.7	4.7
Oconee	71.3	5.5	16.9	45.0	3.9	--
Oglethorpe	220.5	9.5	95.1	98.1	17.8	--
Paulding	165.8	--	72.0	60.8	33.0	--
Polk	128.4	--	23.1	84.7	20.6	--
Rockdale	53.7	--	6.3	36.9	10.5	--
Spalding	71.8	--	17.3	41.6	12.9	--
Troup	211.2	8.5	92.5	97.1	8.9	4.2
Walton	114.5	9.1	18.1	68.0	19.3	--
Total	3,999.2	125.0	1,210.8	2,173.4	450.8	39.2

^{1/} See stocking standards on page 12.

Table 8.--The annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet					Million cubic feet				
Fanks	23.2	15.5	--	2.8	4.9	7.4	4.6	0.6	0.8	1.4
Parrow	9.2	6.7	--	1.0	1.5	3.3	2.4	--	0.4	0.5
Carroll	24.0	14.3	--	4.0	5.7	13.4	9.1	--	1.4	2.9
Clarke	13.8	9.1	0.2	2.3	2.2	3.4	2.5	(1/)	0.7	0.2
Clayton	14.8	12.4	--	1.7	0.7	4.0	3.2	--	0.5	0.3
Cobb	37.5	29.6	--	5.8	2.1	12.9	10.8	--	1.1	1.0
Coweta	54.5	38.6	--	9.3	6.6	16.1	11.2	--	3.1	1.8
De Kalb	17.3	12.5	--	2.0	2.8	4.3	3.1	--	0.4	0.8
Douglas	19.9	10.4	--	3.4	6.1	6.7	3.6	--	1.2	1.9
Elbert	26.0	13.1	0.1	4.5	8.3	9.8	5.7	0.3	1.3	2.5
Fayette	27.2	20.5	--	4.0	2.7	7.6	5.4	--	1.5	0.7
Forsyth	24.7	23.0	--	0.5	1.2	7.6	6.4	--	0.4	0.8
Franklin	15.7	8.7	0.1	2.0	4.9	6.3	3.8	0.1	0.9	1.5
Fulton	67.9	48.3	--	8.9	10.7	21.9	14.9	--	3.5	3.5
Gwinnett	58.0	42.3	--	9.3	6.4	16.9	12.3	--	3.0	1.6
Hall	29.5	18.9	--	1.6	9.0	9.9	6.5	--	0.9	2.5
Haralson	20.5	13.5	--	2.8	4.2	9.1	5.9	--	1.3	1.9
Hart	6.6	2.7	0.3	0.2	3.4	3.3	1.8	(1/)	0.5	1.0
Heard	43.9	34.1	--	3.7	6.1	16.6	13.5	--	1.3	1.8
Henry	44.5	30.7	--	7.2	6.6	12.9	9.4	(1/)	1.7	1.8
Jackson	23.4	21.9	0.1	4.5	2.9	9.3	6.6	(1/)	1.2	1.5
Madison	23.6	16.2	--	5.2	2.2	9.2	6.5	--	2.1	0.6
Meriwether	66.6	55.1	--	5.8	5.7	22.4	17.8	0.1	2.7	1.8
Newton	22.3	15.1	--	2.3	4.9	8.0	5.7	--	0.5	1.8
Oconee	15.8	10.3	--	2.2	3.3	5.2	3.0	--	0.9	1.3
Oglethorpe	63.6	48.2	--	9.3	6.1	19.7	14.0	(1/)	3.5	2.2
Paulding	30.1	20.8	--	4.0	5.3	11.3	7.6	--	2.1	1.6
Polk	19.6	15.2	--	1.1	3.3	6.1	4.3	--	0.2	1.4
Rockdale	8.8	7.2	(1/)	0.4	1.2	2.8	2.1	0.2	0.2	0.5
Spalding	19.0	15.3	--	2.8	0.9	4.8	3.4	--	1.1	0.3
Trap	48.2	40.3	--	4.5	3.4	16.5	12.9	(1/)	2.1	1.5
Walton	23.5	14.1	--	5.8	3.6	8.1	5.2	--	1.5	1.4
Total	949.2	684.6	0.8	124.9	138.9	316.8	225.2	1.3	44.0	46.3

1/ Less than 50,000 board feet or cubic feet.

Table 2.--Annual removals of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet					Million cubic feet				
Banks	17.5	15.3	--	0.7	1.5	5.0	3.3	--	1.2	0.5
Barrow	11.1	9.6	--	--	1.5	3.4	2.8	--	--	0.6
Carroll	20.3	15.5	--	2.4	2.4	4.4	3.3	--	0.6	0.5
Clarke	10.9	2.4	--	7.2	1.3	3.6	0.4	--	2.7	0.5
Clayton	5.1	1.0	--	--	4.1	1.5	0.6	--	--	0.9
Colb	34.1	31.6	--	1.2	1.3	8.3	7.7	--	0.2	0.4
Coweta	32.5	21.4	--	10.4	0.7	10.5	7.6	--	2.7	0.2
De Kalb	20.5	13.3	--	2.2	5.0	5.1	2.9	--	0.4	1.8
Douglas	3.1	3.1	--	--	--	0.7	0.7	--	--	(1/)
Ellert	6.5	5.5	--	0.3	0.7	3.5	3.1	--	0.2	0.2
Fayette	13.2	6.4	--	3.0	3.8	4.5	2.1	--	1.1	1.3
Forsyth	21.3	19.9	--	--	1.4	5.3	5.0	--	--	0.3
Franklin	4.5	4.5	--	--	--	1.7	1.2	0.1	0.1	0.3
Fulton	21.1	16.9	--	2.7	1.5	5.4	4.3	--	0.6	0.5
Gwinnett	21.0	12.1	--	4.2	4.7	5.9	3.7	--	0.8	1.4
Hall	22.6	21.7	--	--	0.9	7.8	7.1	--	--	0.7
Haralson	16.1	4.5	--	5.1	6.5	4.0	1.4	--	1.1	2.4
Hart	9.3	7.7	--	8.6	--	3.4	0.8	--	2.6	--
Hearl	11.5	10.5	--	--	1.0	4.3	3.6	--	0.1	0.6
Henry	23.5	19.4	--	2.1	2.0	7.0	5.9	--	0.6	0.5
Jackson	14.8	13.5	--	1.3	--	4.6	4.2	--	0.2	0.1
Madison	9.3	2.1	--	4.2	2.4	2.3	0.0	0.1	1.2	0.7
Meriwether	17.1	6.7	--	2.7	7.7	5.5	2.6	--	1.1	1.5
Macon	12.2	9.2	--	--	3.0	2.6	1.6	--	--	0.5
McNeal	2.1	1.4	--	0.7	--	1.3	0.3	--	0.5	--
Oglethorpe	35.7	25.0	--	5.0	1.0	10.7	7.1	--	1.3	0.5
Paulding	30.8	21.9	--	5.4	3.5	10.7	6.7	--	2.3	1.2
Polk	2.6	1.7	--	--	0.9	3.0	2.5	--	--	0.5
Rockdale	1.5	1.3	--	--	--	0.2	0.2	--	--	--
Spalding	2.4	1.0	--	6.5	1.6	4.9	3.2	--	1.5	0.2
Stap	21.2	19.5	--	5.4	--	3.7	2.0	--	2.0	0.1
Wilcox	8.5	6.5	--	1.1	0.7	2.3	1.6	--	0.3	0.4
Total	511.7	367.0	--	83.3	61.4	152.3	15.1	1.2	26.5	13.2

1/ Less than 0.00 cubic feet.

Table 10.--Area of commercial forest land, by forest type and ownership class, 1972

Forest type	:	:	Ownership class					
			All	National	Other	Forest	Misc.	
	:	:	ownerships	Forest	public	industry	Farmer	Private
----- Thousand acres -----								
Softwood types:								
Longleaf pine			4.3	--	--	4.3	--	--
Slash pine			4.8	--	--	4.8	--	--
Loblolly pine			1,542.3	0.2	25.6	156.3	402.6	957.6
Shortleaf pine			491.7	--	16.5	60.3	142.8	272.1
Virginia pine			52.7	0.4	--	--	8.8	43.5
Eastern redcedar			9.4	--	--	--	9.4	--
Total			2,105.2	0.6	42.1	225.7	563.6	1,273.2
Hardwood types:								
Oak-pine			781.1	--	12.7	73.5	247.9	447.0
Oak-hickory			829.8	--	12.0	80.3	312.9	424.6
Southern scrub oak			9.2	--	--	--	--	9.2
Oak-gum-cypress			107.5	--	--	12.9	36.5	58.1
Elm-ash-cottonwood			166.4	3.8	--	13.8	92.7	56.1
Total			1,894.0	3.8	24.7	180.5	690.0	995.0
All types			3,999.2	4.4	66.8	406.2	1,253.6	2,268.2

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1972

Ownership classes	:	All classes	Stocking percentage ^{1/}				
			Over 130	100-130	60-99	16.7-59	Less than 16.7
----- <u>Thousand acres</u> -----							
National Forest		4.4	--	0.3	4.1	--	--
Other public		66.8	3.9	31.5	22.7	4.6	4.1
Forest industry		406.2	23.9	116.7	198.2	59.5	7.9
Farmer		1,253.6	36.3	366.7	687.5	149.3	13.8
Misc. private		2,268.2	60.9	695.6	1,260.9	237.4	13.4
All ownerships		3,999.2	125.0	1,210.8	2,173.4	450.8	39.2

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1972

Class of timber	: All : species	: Pine	: Other : softwood	: Soft : hardwood	: Hard : hardwood
- - - - - <u>Million cubic feet</u> - - - - -					
Sawtimber trees:					
Saw-log portion	2,246.3	1,355.0	0.7	392.2	498.4
Upper-stem portion	293.4	127.5	0.1	73.0	92.8
Total	2,539.7	1,482.5	0.8	465.2	591.2
Poletimber trees	1,742.9	936.0	3.9	363.4	439.6
All growing-stock trees	4,282.6	2,418.5	4.7	828.6	1,030.8
Rough trees:					
Sawtimber-size trees	98.2	14.6	0.5	36.4	46.7
Poletimber-size trees	207.8	27.8	--	80.2	99.8
Total	306.0	42.4	0.5	116.6	146.5
Rotten trees:					
Sawtimber-size trees	48.3	0.6	--	23.6	24.1
Poletimber-size trees	11.5	--	--	8.4	3.1
Total	59.8	0.6	--	32.0	27.2
Salvable dead trees:					
Sawtimber-size trees	7.7	3.6	0.4	0.6	3.1
Poletimber-size trees	1.1	1.1	--	--	--
Total	8.8	4.7	0.4	0.6	3.1
Total, all timber	4,657.2	2,466.2	5.6	977.8	1,207.6

Table 15.--Number of growing-stock trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)																20.0 and larger
		5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9		
Softwood:																		
		Thousand trees																
Longleaf pine	2,000	720	372	360	303	128	74	--	--	24	13	--	--	--	--	--	--	
Slash pine	2,226	1,469	580	127	41	--	--	--	--	--	--	--	--	--	--	--	--	
Loblolly pine	233,573	114,923	58,797	28,823	15,697	8,753	4,110	1,559	580	306	20	--	--	--	--	--	--	
Shortleaf pine	119,609	63,208	30,214	15,465	7,441	2,305	649	250	57	17	3	--	--	--	--	--	--	
Spruce pine	20	--	--	--	--	--	13	--	--	7	--	--	--	--	--	--	--	
Pitch pine	29	--	--	29	--	--	--	--	--	--	--	--	--	--	--	--	--	
Virginia pine	7,886	3,843	2,545	881	452	106	46	13	--	--	--	--	--	--	--	--	--	
Eastern redcedar	1,614	1,263	269	27	55	--	--	--	--	--	--	--	--	--	--	--	--	
Total softwoods	366,957	185,426	92,786	45,723	23,380	11,292	4,892	1,822	661	343	23	--	--	--	--	--	--	
Hardwood:																		
Select white oaks ^{1/}	18,851	7,452	3,832	3,305	1,722	1,194	671	217	178	247	35	--	--	--	--	--	--	
Select red oaks ^{2/}	8,901	4,122	1,819	1,189	702	469	350	133	53	57	7	--	--	--	--	--	--	
Other white oaks	13,965	6,094	3,777	1,872	1,067	510	312	133	124	65	11	--	--	--	--	--	--	
Other red oaks	44,022	19,423	10,675	6,504	3,409	1,946	1,049	452	283	236	45	--	--	--	--	--	--	
Hickory	18,594	8,646	4,525	2,079	1,056	824	468	238	92	60	6	--	--	--	--	--	--	
Hard maple	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Soft maple	7,190	2,775	1,523	1,294	760	297	250	134	88	63	6	--	--	--	--	--	--	
Beech	497	97	102	--	43	112	13	52	24	50	4	--	--	--	--	--	--	
Sweetgum	47,771	23,375	11,739	6,691	3,010	1,714	669	302	142	127	2	--	--	--	--	--	--	
Blackgum	4,359	1,594	1,092	842	405	177	142	74	16	17	--	--	--	--	--	--	--	
Ash	5,019	1,307	1,363	837	709	392	184	112	47	68	--	--	--	--	--	--	--	
Passwood	96	85	--	--	--	--	11	--	--	--	--	--	--	--	--	--	--	
Black walnut	336	180	126	--	22	--	--	--	8	--	--	--	--	--	--	--	--	
Yellow-poplar	25,631	9,307	4,946	4,215	3,270	1,724	1,076	567	242	270	14	--	--	--	--	--	--	
Elm	3,671	1,775	823	391	297	281	64	26	--	14	--	--	--	--	--	--	--	
Black cherry	1,777	751	751	260	--	15	--	--	--	--	--	--	--	--	--	--	--	
Sycamore	598	73	180	102	66	82	62	21	--	12	--	--	--	--	--	--	--	
River birch	1,585	701	324	74	180	135	74	62	23	4	8	--	--	--	--	--	--	
Other eastern hardwoods	2,608	994	648	425	415	33	50	30	8	5	--	--	--	--	--	--	--	
Total hardwoods	205,552	88,832	48,245	30,080	17,733	9,905	5,445	2,553	1,328	1,295	136	--	--	--	--	--	--	
All species	572,509	274,258	141,031	75,803	41,722	21,197	10,337	4,375	1,989	1,638	159	--	--	--	--	--	--	

1/ Includes white and swamp chestnut oaks.

2/ Includes cherrybark, northern red, and Shumard oaks.

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)												29.0 and larger
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9				
----- Million cubic feet -----														
Softwood:														
Longleaf pine	21.6	1.7	1.9	4.4	5.3	3.1	2.6	--	1.6	1.0	--	--	--	--
Slash pine	9.5	4.3	3.0	1.3	0.9	--	--	--	--	--	--	--	--	--
Loblolly pine	1,666.7	270.8	327.3	303.1	268.6	219.5	143.1	70.8	35.0	25.5	3.0	3.0	3.0	3.0
Shortleaf pine	716.0	148.4	180.8	164.4	126.9	57.3	22.3	11.1	3.3	1.1	0.4	0.4	0.4	0.4
Spruce pine	1.1	--	--	--	--	--	0.5	--	--	0.6	--	--	--	--
Pitch pine	0.2	--	--	0.2	--	--	--	--	--	--	--	--	--	--
Virginia pine	46.4	10.5	15.1	8.6	6.6	3.3	1.6	0.7	--	--	--	--	--	--
Eastern redcedar	5.2	2.5	1.4	0.4	0.6	0.3	--	--	--	--	--	--	--	--
Total softwoods	2,466.7	438.2	529.5	482.4	408.9	283.5	175.1	82.6	39.9	28.2	3.4	3.4	3.4	3.4
Hardwood:														
Select white oaks ^{1/}	222.6	24.0	22.7	37.0	29.6	31.4	23.4	10.8	11.4	25.9	6.4	6.4	6.4	6.4
Select red oaks ^{2/}	96.0	13.4	13.2	14.4	12.4	12.4	12.0	6.0	3.7	7.4	1.1	1.1	1.1	1.1
Other white oaks	122.8	16.9	22.2	18.6	19.5	12.3	10.5	6.2	8.0	6.7	1.9	1.9	1.9	1.9
Other red oaks	394.5	53.2	65.5	69.5	55.0	47.0	36.2	20.6	16.7	21.7	9.1	9.1	9.1	9.1
Hickory	170.9	23.6	27.7	24.1	31.6	20.8	17.2	11.7	6.5	6.2	1.5	1.5	1.5	1.5
Hard maple	1.4	0.9	0.3	--	0.2	--	--	--	--	--	--	--	--	--
Soft maple	116.1	15.5	17.2	20.0	15.6	12.5	11.3	9.1	5.5	8.1	1.3	1.3	1.3	1.3
Beech	19.7	0.5	1.0	--	1.4	3.3	1.0	3.0	2.3	6.2	1.0	1.0	1.0	1.0
Sweetgum	386.7	57.7	74.5	79.4	60.0	49.5	26.8	16.3	9.2	12.1	1.2	1.2	1.2	1.2
Blackgum	53.5	7.3	9.2	12.6	8.7	4.5	5.0	3.9	1.1	1.2	--	--	--	--
Ash	78.7	6.2	9.7	11.7	16.1	11.7	7.2	5.7	3.6	6.6	0.2	0.2	0.2	0.2
Passwood	0.9	0.3	--	--	--	--	0.3	--	--	0.3	--	--	--	--
Black walnut	2.1	0.4	0.8	--	0.3	0.2	--	--	0.4	--	--	--	--	--
Yellow-poplar	332.0	27.4	33.5	49.7	60.3	48.4	41.7	26.1	14.9	25.5	4.5	4.5	4.5	4.5
Fern	36.8	5.5	5.8	6.2	5.8	7.9	2.3	1.5	--	1.8	--	--	--	--
Black cherry	16.9	6.1	5.4	3.7	0.9	0.8	--	--	--	--	--	--	--	--
Cycamore	10.4	0.4	1.5	1.2	0.9	2.0	2.3	0.9	0.4	0.8	--	--	--	--
River birch	22.7	2.3	2.7	1.3	5.1	3.2	1.7	2.6	1.3	0.6	0.9	0.9	0.9	0.9
Other eastern hardwoods	97.0	34.4	22.4	13.8	14.2	4.7	3.4	2.2	0.3	1.5	--	--	--	--
Total hardwoods	2,181.7	296.0	335.3	363.2	337.6	272.6	203.3	126.7	85.3	132.6	29.1	29.1	29.1	29.1
All species	4,648.4	734.2	864.8	845.6	746.5	556.1	378.4	239.3	125.2	160.8	32.5	32.5	32.5	32.5

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Chard oak.

Table 15.--Volume of growing stock on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)										Million cubic feet	
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger		
Softwood:													
Longleaf pine	21.3	1.7	1.9	4.4	5.3	3.1	2.6	--	1.3	1.0	--		
Slash pine	8.9	3.7	3.0	1.3	0.9	--	--	--	--	--	--		
Loblolly pine	1,636.7	264.0	316.8	295.2	267.3	217.3	142.4	70.8	34.7	25.2	3.0		
Shortleaf pine	704.9	142.8	177.5	163.1	126.9	56.4	22.3	11.1	3.3	1.1	0.4		
Spruce pine	1.1	--	--	--	--	--	0.5	--	--	0.6	--		
Pitch pine	0.2	--	--	0.2	--	--	--	--	--	--	--		
Virginia pine	45.4	9.9	14.7	8.6	6.6	3.3	1.6	0.7	--	--	--		
Eastern redcedar	4.7	2.5	1.4	0.2	0.6	--	--	--	--	--	--		
Total softwoods	2,423.2	424.6	515.3	473.0	407.6	280.1	169.4	82.6	39.3	27.9	3.4		
Hardwood:													
Select white oaks ^{1/}	209.9	20.7	22.2	36.4	29.3	30.8	22.7	10.2	10.6	21.4	5.6		
Select red oaks ^{2/}	89.8	13.0	12.0	12.9	11.6	12.4	12.0	5.7	2.9	6.2	1.1		
Other white oaks	109.7	15.7	20.3	17.6	15.8	11.5	9.6	5.2	6.8	5.6	1.6		
Other red oaks	360.5	48.6	57.4	63.9	51.4	44.9	32.9	19.1	15.3	19.3	7.7		
Hickory	153.5	19.7	24.2	20.8	28.1	19.9	16.2	11.3	5.9	5.9	1.5		
Hard maple	0.4	0.4	--	--	--	--	--	--	--	--	--		
Soft maple	73.1	8.3	8.4	13.2	12.5	6.8	8.1	5.9	4.2	4.6	1.1		
Beech	13.4	0.3	0.6	--	0.6	2.9	0.4	2.4	1.6	4.1	0.5		
Sweetgum	343.9	48.6	63.7	70.1	56.0	45.6	24.7	15.0	9.0	10.7	0.5		
Blackgum	38.0	3.9	5.7	8.5	6.3	4.1	4.6	3.2	0.7	1.0	--		
Ash	65.4	3.9	8.3	9.5	13.4	10.3	6.5	4.7	2.9	5.9	--		
Basswood	0.6	0.3	--	--	--	--	0.3	--	--	--	--		
Black walnut	1.9	0.4	0.8	--	0.3	--	--	--	0.4	--	--		
Yellow-poplar	311.9	25.0	30.5	47.5	59.7	45.9	38.8	25.5	14.1	22.3	2.6		
Elm	27.8	3.9	4.2	3.6	4.8	6.9	1.9	1.1	--	1.4	--		
Black cherry	9.7	2.0	4.6	2.7	--	0.4	--	--	--	--	--		
Sycamore	9.4	0.4	1.5	0.9	0.9	2.0	2.0	0.9	--	0.8	--		
River birch	19.2	2.3	2.4	0.6	3.4	3.2	2.3	2.4	1.3	0.4	0.9		
Other eastern hardwoods	21.3	2.5	3.4	4.7	6.5	0.8	1.5	1.1	0.3	0.5	--		
Total hardwoods	1,859.4	219.9	270.2	312.9	300.6	248.4	184.5	113.7	76.0	110.1	23.1		
All species	4,282.6	644.5	785.5	785.9	708.2	528.5	353.9	196.3	115.3	138.0	26.5		

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)												Million board feet	
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger						
Softwood:															
Longleaf pine	91.4	19.0	26.1	16.8	14.8	--	8.2	6.5	--	--	--	--	--	--	--
Slash pine	8.7	4.6	4.1	--	--	--	--	--	--	--	--	--	--	--	--
Loblolly pine	4,878.5	1,028.7	1,169.2	1,087.3	779.2	415.2	213.0	164.7	21.2	--	--	--	--	--	--
Shortleaf pine	1,638.0	584.6	557.6	280.5	121.1	63.8	20.3	7.2	2.9	--	--	--	--	--	--
Spruce pine	5.4	--	--	--	2.5	--	--	--	--	--	--	--	--	--	--
Pitch pine	0.7	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	82.4	28.9	26.5	15.3	7.8	3.9	--	--	--	--	--	--	--	--	--
Eastern redcedar	3.4	0.8	2.6	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	6,708.5	1,667.3	1,786.1	1,399.9	925.4	482.9	241.5	181.3	24.1	--	--	--	--	--	--
Hardwood:															
Select white oaks ^{1/}	558.1	--	95.5	118.9	96.9	47.6	52.3	113.7	33.2	--	--	--	--	--	--
Select red oaks ^{2/}	207.7	--	36.8	46.5	48.9	25.1	13.2	31.3	5.9	--	--	--	--	--	--
Other white oaks	245.5	--	54.4	47.0	43.2	25.4	33.8	31.5	10.2	--	--	--	--	--	--
Other red oaks	815.6	--	171.3	176.9	144.9	90.4	78.1	106.6	47.4	--	--	--	--	--	--
Hickory	376.5	--	95.1	79.8	73.1	55.1	31.1	32.9	9.4	--	--	--	--	--	--
Hard maple	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	172.0	--	38.6	25.3	32.9	26.1	19.7	23.4	6.0	--	--	--	--	--	--
Beech	49.5	--	2.3	10.8	1.4	9.3	6.4	17.2	2.1	--	--	--	--	--	--
Sweetgum	705.3	--	196.8	193.5	119.5	77.8	50.0	64.2	3.5	--	--	--	--	--	--
Blackgum	78.0	--	20.4	15.3	19.4	14.8	3.4	4.7	--	--	--	--	--	--	--
Ash	176.1	--	42.2	38.9	27.4	21.9	14.4	31.3	--	--	--	--	--	--	--
Baswood	1.0	--	--	--	1.0	--	--	--	--	--	--	--	--	--	--
Black walnut	2.0	--	0.9	--	--	--	1.1	--	--	--	--	--	--	--	--
Yellow-poplar	944.3	--	207.5	193.1	183.9	131.6	77.7	133.1	17.4	--	--	--	--	--	--
Elm	63.9	--	16.7	26.6	7.9	5.2	--	7.5	--	--	--	--	--	--	--
Black cherry	1.4	--	--	1.4	--	--	--	--	--	--	--	--	--	--	--
Sycamore	25.9	--	2.6	7.4	8.2	3.8	--	3.9	--	--	--	--	--	--	--
River birch	55.2	--	11.8	12.3	9.5	10.0	5.6	1.8	4.2	--	--	--	--	--	--
Other eastern hardwoods	41.1	--	21.3	2.7	7.0	5.3	1.6	3.2	--	--	--	--	--	--	--
Total hardwoods	4,519.1	--	1,014.2	996.4	825.1	519.4	388.4	606.3	139.3	--	--	--	--	--	--
All species	11,227.6	1,667.3	2,800.3	2,396.3	1,750.5	1,032.3	629.9	787.6	163.4	--	--	--	--	--	--

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1971

Species	:	:
	: Net annual growth	: Annual timber removals
	:	:
- - <u>Million cubic feet</u> - -		
Softwood:		
Yellow pines	225.2	105.7
Other eastern softwoods	1.3	0.2
Total softwoods	226.5	105.9
Hardwood:		
Select white and red oaks	14.1	6.8
Other white and red oaks	23.6	6.5
Hickory	4.6	3.0
Hard maple	--	--
Sweetgum	17.8	10.8
Ash, walnut, and black cherry	2.9	1.2
Yellow-poplar	19.1	10.9
Blackgum	0.7	1.4
Other eastern hardwoods	7.5	5.8
Total hardwoods	90.3	46.4
All species	316.8	152.3

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1971

Species	: Net annual growth	: Annual timber removals
	: Million board feet	: Million board feet
Softwood:		
Yellow pines	684.6	367.0
Other eastern softwoods	0.8	--
Total softwoods	685.4	367.0
Hardwood:		
Select white and red oaks	50.6	22.7
Other white and red oaks	64.5	16.4
Hickory	12.3	10.1
Hard maple	--	--
Sweetgum	34.1	37.5
Ash, walnut, and black cherry	7.7	3.8
Yellow-poplar	67.2	31.7
Blackgum	3.0	3.8
Other eastern hardwoods	24.4	18.7
Total hardwoods	263.8	144.7
All species	949.2	511.7

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1971

Species	: Growing stock	: Sawtimber
	: Million cubic feet	: Million board feet
Softwood:		
Yellow pines	18.3	40.8
Other eastern softwoods	0.1	0.3
Total softwoods	18.4	41.1
Hardwood:		
Select white and red oaks	1.0	2.9
Other white and red oaks	2.6	5.1
Hickory	0.2	0.4
Hard maple	--	--
Sweetgum	1.5	3.4
Ash, walnut, and black cherry	1.3	2.3
Yellow-poplar	0.2	0.6
Blackgum	0.1	0.3
Other eastern hardwoods	3.1	6.3
Total hardwoods	10.0	21.3
All species	28.4	62.4

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1972

Ownership class	All live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million cubic feet									
National Forest	9.8	1.3	--	3.5	5.0	9.5	1.3	--	3.5	4.7
Other public	78.6	49.6	--	14.1	14.9	73.1	49.6	--	12.9	10.6
Forest industry	449.3	243.2	--	101.7	104.4	409.2	239.3	--	83.8	86.1
Farmer	1,484.1	700.2	2.3	337.7	443.9	1,364.1	690.2	1.8	285.2	386.9
Miscellaneous private	2,626.6	1,467.2	2.9	520.2	636.3	2,426.7	1,438.1	2.9	443.2	542.5
All ownerships	4,648.4	2,461.5	5.2	977.2	1,204.5	4,282.6	2,418.5	4.7	828.6	1,030.8

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1972

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet									
National Forest	12.3	--	--	6.7	5.6	20.6	8.2	--	5.7	6.7
Other public	112.5	87.6	--	11.8	13.1	101.0	60.0	--	27.9	13.1
Forest industry	747.1	521.6	--	126.6	98.9	338.1	148.0	--	83.1	107.0
Farmer	2,034.2	1,346.7	1.5	289.0	397.0	1,409.2	495.6	--	359.1	554.5
Miscellaneous private	3,957.8	2,894.0	1.9	526.7	535.2	2,494.8	1,143.4	--	586.8	764.6
All ownerships	6,863.9	4,849.9	3.4	960.8	1,049.8	4,363.7	1,855.2	--	1,062.6	1,445.9

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
----- Million cubic feet -----										
National Forest	0.4	0.1	--	0.1	0.2	--	--	--	--	--
Other public	6.0	4.7	--	0.7	0.6	2.2	0.8	--	0.9	0.5
Forest industry	32.1	23.8	--	4.6	3.7	13.8	10.5	0.1	1.1	2.1
Farmer	96.7	63.7	1.2	14.7	17.1	50.3	32.1	0.1	12.3	5.8
Miscellaneous private	181.6	132.9	0.1	23.9	24.7	86.0	62.3	--	12.2	11.5
All ownerships	316.8	225.2	1.3	44.0	46.3	152.3	105.7	0.2	26.5	19.9

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
----- Million board feet -----										
National Forest	1.3	0.3	--	0.5	0.5	--	--	--	--	--
Other public	15.0	11.6	--	1.4	2.0	2.0	0.6	--	1.4	--
Forest industry	90.1	63.7	--	14.5	11.9	47.2	38.2	--	2.8	6.2
Farmer	291.4	203.2	0.4	36.3	51.5	157.6	100.1	--	38.2	19.3
Miscellaneous private	551.4	405.8	0.4	72.2	73.0	304.9	228.1	--	40.9	35.9
All ownerships	949.2	684.6	0.8	124.9	138.9	511.7	367.0	--	83.3	61.4

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1972

Forest type, species group, and class of material	All ownships		Ownership class									
			National Forest		Other public		Forest industry		Farmer		Misc. private	
	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Pine types:												
Growing stock:												
Softwood	2,321	894	--	--	2,378	982	2,319	868	2,260	929	2,346	880
Hardwood	325	153	--	--	277	155	279	126	358	169	319	151
Total	2,646	1,047	--	--	2,655	1,137	2,598	994	2,618	1,098	2,665	1,031
Other timber:												
Softwood	--	17	--	--	--	--	--	14	--	15	--	18
Hardwood	--	28	--	--	--	28	--	19	--	32	--	28
Total	--	45	--	--	--	28	--	33	--	47	--	46
Oak-pine types:												
Growing stock:												
Softwood	1,644	517	--	--	2,715	673	1,705	496	1,723	517	1,545	513
Hardwood	1,164	527	--	--	937	332	965	453	1,180	551	1,194	533
Total	2,808	1,044	--	--	3,652	1,005	2,670	949	2,903	1,068	2,739	1,046
Other timber:												
Softwood	--	9	--	--	--	--	--	11	--	6	--	10
Hardwood	--	78	--	--	--	128	--	102	--	68	--	78
Total	--	87	--	--	--	128	--	113	--	74	--	88
Upland hardwood types:												
Growing stock:												
Softwood	504	138	--	--	989	194	120	60	324	104	696	176
Hardwood	2,369	944	--	--	2,828	868	1,829	754	2,293	954	2,518	976
Total	2,873	1,082	--	--	3,817	1,062	1,949	814	2,617	1,058	3,214	1,152
Other timber:												
Softwood	--	2	--	--	--	--	--	--	--	2	--	3
Hardwood	--	158	--	--	--	153	--	195	--	133	--	168
Total	--	160	--	--	--	153	--	195	--	135	--	171
Bottomland hardwood types:												
Growing stock:												
Softwood	447	91	1,813	304	--	--	757	173	328	62	454	95
Hardwood	3,399	1,207	5,501	1,812	--	--	4,799	1,696	3,021	1,104	3,413	1,185
Total	3,846	1,298	7,314	2,116	--	--	5,556	1,869	3,349	1,166	3,867	1,280
Other timber:												
Softwood	--	--	--	--	--	--	--	--	--	--	--	--
Hardwood	--	252	--	63	--	--	--	302	--	254	--	245
Total	--	252	--	63	--	--	--	302	--	254	--	245
All types:												
Growing stock:												
Softwood	1,677	606	1,813	304	2,192	736	1,648	589	1,472	552	1,781	635
Hardwood	1,130	465	5,501	1,812	979	349	1,023	418	1,277	537	1,064	435
Total	2,807	1,071	7,314	2,116	3,171	1,085	2,671	1,007	2,749	1,089	2,845	1,070
Other timber:												
Softwood	--	11	--	--	--	--	--	10	--	8	--	13
Hardwood	--	81	--	63	--	82	--	89	--	88	--	75
Total	--	92	--	63	--	82	--	99	--	96	--	88
All timber	2,807	1,163	7,314	2,179	3,171	1,167	2,671	1,106	2,749	1,185	2,845	1,158

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1953, 1961, and 1972

Land use class	Survey completion date			Change 1961-1972
	1953	1961 ^{2/}	1972	
- - - - <u>Thousand acres</u> - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	2,320.2	2,794.1	2,886.3	+ 92.2
Hardwood types	1,201.7	1,290.5	1,112.9	-177.6
Total	3,521.9	4,084.6	3,999.2	- 85.4
Noncommercial forest land:				
Productive-reserved	2.5	5.6	7.5	+ 1.9
Unproductive	5.3	--	--	--
Total	7.8	5.6	7.5	+ 1.9
Nonforest land:				
Cropland	1,857.1	1,051.2	657.7	-393.5
Pasture and range	477.5	633.8	795.6	+161.8
Other	390.5	419.0	713.9	+294.9
Total	2,725.1	2,104.0	2,167.2	+ 63.2
All land ^{1/}	6,254.8	6,194.2	6,173.9	- 20.3

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revisions in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)											
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger			
			SAWTIMBER (in million board feet)											
Softwood	1953	2,552.3	--	--	874.4	737.0	445.1	276.2	126.1	53.7	39.8			
	1961	3,364.4	--	--	1,131.1	1,032.4	600.4	305.1	113.7	108.2	73.5			
	1972	6,708.5	--	--	1,667.3	1,786.1	1,399.9	925.4	482.9	241.5	205.4			
Hardwood	1953	2,712.2	--	--	--	558.5	584.7	427.2	336.6	276.9	528.3			
	1961	3,318.7	--	--	--	785.7	670.3	528.6	447.0	332.8	554.3			
	1972	4,519.1	--	--	--	1,014.2	996.4	825.1	549.4	388.4	745.6			
GROWING STOCK (in million cubic feet)														
Softwood	1953	1,107.4	228.3	286.8	248.0	168.2	89.1	50.5	21.6	8.8	6.1			
	1961	1,374.8	270.4	323.6	320.9	235.6	120.2	55.8	19.5	17.6	11.2			
	1972	2,423.2	424.6	515.3	473.0	407.6	280.1	169.4	82.6	39.3	31.3			
Hardwood	1953	1,091.5	105.5	155.1	205.9	165.5	145.8	95.5	69.6	54.2	94.4			
	1961	1,337.0	143.1	178.9	240.2	232.9	167.1	118.2	92.5	65.1	99.0			
	1972	1,859.4	219.9	270.2	312.9	300.6	248.4	184.5	113.7	76.0	133.2			
ALL LIVE TIMBER (in million cubic feet)														
Softwood	1953	1,130.0	235.8	294.9	253.1	168.7	90.1	50.8	21.6	8.9	6.1			
	1961	1,402.1	279.3	332.7	327.3	236.4	121.6	56.1	19.5	17.9	11.3			
	1972	2,466.7	438.2	529.5	482.4	408.9	283.5	170.1	82.6	39.9	31.6			
Hardwood	1953	1,278.2	142.5	192.5	239.0	186.0	160.0	105.3	77.6	60.8	114.5			
	1961	1,565.9	193.4	222.0	278.9	261.6	183.4	130.2	103.1	73.1	120.2			
	1972	2,181.7	296.0	335.3	363.2	337.6	272.6	203.3	126.7	85.3	161.7			

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Knight, Herbert A.

1972. Forest statistics for North Central Georgia, 1972. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-24, 34 pp.

Since 1961, some 373,000 acres of commercial forest land in the 32-county area of North Central Georgia have been diverted to other uses. Over the same period, 288,000 acres of new forest land were added, for a net decrease of 85,000 acres. Net growth has exceeded removals of growing-stock timber; volume of softwood has increased by 76 percent and hardwood volume has increased by 39 percent. Only 12 percent of the commercial forests are less than 60 percent stocked with growing-stock trees. The net growth averaged 79 cubic feet per acre in 1971, a record high for an entire Forest Survey Unit in the Southeast.

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*Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina*



FOREST STATISTICS for North Georgia 1972



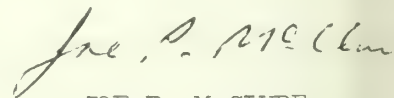
FOREWORD

This report highlights the principal findings of the fourth Forest Survey of the timber resource in North Georgia. The survey was started in July and completed in November 1972. Findings of the previous surveys, completed in 1936, 1953, and 1961, provide the basis for measuring changes that have occurred and trends that have developed over the past 36 years. This report primarily emphasizes the changes and trends that have taken place since the last survey.

Forest Survey, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing, nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Survey is an activity of the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective is to inventory periodically the forest lands, their extent, condition, and volume of timber, and ascertain rates of timber growth and depletion. It is necessary to keep this basic information up to date to provide a sound basis for the formulation of forest policies and programs.

The 21-county area covered by this report is one of five Survey Units in Georgia. Similar reports, USDA Forest Service Resource Bulletins SE-19, 21, 22, and 24, have been issued for Southwest, Southeast, Central, and North Central Georgia, along with an interim summary of some of the State totals. A final State report will present an in-depth analysis of the findings and should be available by October 1973.

The Southeastern Station gratefully acknowledges the cooperation and assistance of the Georgia Forestry Commission, other public agencies, forest industry, and other private landowners in the survey.



JOE P. McCLURE
Project Leader

**Forest Statistics
for
North Georgia
1972**

**by
Herbert A. Knight, Resource Analyst**

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HIGHLIGHTS

Since 1961 in North Georgia--

- area of commercial forest land has decreased by 85,000 acres, or less than 3 percent. Some 215,000 acres of commercial forest were diverted to other land uses, and 130,000 acres of new forest were added. About half of the diversion was to urban development, and most of the remaining diversion was to agricultural use, largely pasture. About 70 percent of the added forest is attributed to the natural reversion of idle farmland. Commercial forests currently occupy 3.2 million acres, or 75 percent of the total land in this 21-county area.
- there has been less forestry activity than in any other part of the State. Seven out of every 10 acres now classified as commercial forest showed no evidence of treatment or major disturbance over the 11-year remeasurement period. The relatively low level of forestry activity is attributed to several factors: Approximately 30 percent of the commercial forest occurs on mountainous terrain, and hardwood species dominate more than half the Survey Unit. Almost one-fourth of the commercial forest is publicly owned and these stands are generally managed on rather long rotations. There are only about 100,000 acres in plantations, which means that natural stands make up more than 95 percent of the commercial forest.
- the ownership of some half million acres of commercial forest land has shifted from the farmer to the miscellaneous private class. Between 1959 and 1969, the number of farms in North Georgia declined from 15,182 to 9,401, according to the Census of Agriculture. Area of commercial forest land owned by forest industry decreased from about 330,000 to 250,000 acres, or by one-fourth. There has been a 10-percent increase in the publicly owned timberland, which now totals more than 770,000 acres. About 95 percent of this publicly owned forest is on the Chattahoochee National Forest.
- average basal area of all live trees 5 inches d.b.h. and larger has increased from 47 to 66 square feet per acre of commercial forest land. There are also about 760 sapling-size trees per acre, 100 more than in 1961. Trees which fail to qualify as growing stock because of roughness, rot, poor form, or species make up more than one-fourth of the stocking.

--volume of softwood growing stock has increased from 0.9 to 1.5 billion cubic feet, or by 67 percent. The increase in softwood volume occurred across the range of diameter classes. The current inventory of softwood growing stock includes more than 4.0 billion board feet of sawtimber, 85 percent more than in 1961. Shortleaf pine, loblolly pine, Virginia pine, and eastern white pine are the leading softwood species in the area.

--volume of hardwood growing stock has increased from almost 1.4 to 1.8 billion cubic feet, or by 32 percent. Again, the increase in volume occurred across the range of diameters. The current inventory of hardwood growing stock includes almost 4.7 billion board feet of sawtimber, up by 41 percent. Oak, hickory, and yellow-poplar are the leading species and make up almost 90 percent of the hardwood volume. The largest increase has been in the volume of yellow-poplar, which more than doubled.

In 1971--

--net growth of growing stock averaged 55 cubic feet per acre of commercial forest land and totaled 175 million cubic feet. Although hardwoods made up 55 percent of the growing-stock inventory, softwoods accounted for over 60 percent of the net growth. By ownership class, 23 percent of the growth occurred on publicly owned forests, 8 percent on lands owned by forest industry, 28 percent on farm woodlands, and the remaining 41 percent on other private lands. The net growth of all species included 520 million board feet of sawtimber.

--removals of growing stock totaled almost 89 million cubic feet, or about one-half of the net growth. About 60 percent of the removals was also softwood; however, removals by ownership differed from the distribution of net growth. Only 13 percent of the removals was from publicly owned forests, 15 percent came from industry lands, 27 percent from farm woodlands, and 45 percent was provided by the other private lands. The total removals included 277 million board feet of sawtimber.

--mortality of growing stock totaled almost 19 million cubic feet, which reduced growth by some 10 percent. Weather, disease, and suppression were the leading causes of death, followed by fire and insects. Two-thirds of the mortality was hardwood. Total mortality included an estimated 53 million board feet of sawtimber.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 14,584 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 792 of these 16-point clusters was ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 576 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5 inches d.b.h. were tallied on fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on the trees tallied at one out of every 20 sample locations in North Georgia, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same 5-percent subsample of plots used for the tree-volume study in North Georgia also served as a quality control of field measurements.
4. Felled trees were measured at 10 active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 593 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	1.06
Per billion cubic feet of growing stock - - - - -	4.77
Per billion cubic feet of net annual growth - - - - -	1.42
Per billion cubic feet of annual removals - - - - -	3.32

Sampling errors for county and unit totals,^{1/} in terms of one standard error

County	: Commercial	: Cubic-foot volume of growing stock			
	: forest area	: Inventory	: Growth	: Removals	
- - - - - <u>Sampling error</u> ^{2/} - - - - -					
Bartow	3.44	10.46	12.72	38.95	
Catoosa	8.06	20.92	22.68	43.03	
Chattooga	2.07	11.09	15.40	58.43	
Cherokee	1.56	11.49	12.20	31.97	
Dade	4.49	21.28	27.73	60.97	
Dawson	4.59	9.98	14.28	82.12	
Fannin	0.99	7.86	13.17	26.65	
Floyd	2.89	11.74	14.03	42.59	
Gilmer	1.04	8.39	9.96	28.40	
Gordon	4.27	16.43	17.29	41.64	
Habersham	1.84	9.45	12.61	40.36	
Lumpkin	1.83	10.66	14.48	68.58	
Murray	3.70	10.57	15.27	44.14	
Pickens	1.65	13.91	13.68	43.80	
Rabun	1.13	9.11	10.68	46.92	
Stephens	4.30	12.11	24.53	50.40	
Towns	1.72	11.89	20.41	--	
Union	1.48	9.48	10.43	71.78	
Walker	3.13	8.45	15.70	35.48	
White	1.34	10.64	15.33	46.19	
Whitfield	4.39	14.77	18.12	51.02	
Total	0.59	2.60	3.39	11.15	

^{1/} Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$e = \frac{(SE) \sqrt{\text{Specified volume or area}}}{\sqrt{\text{Volume or area total in question}}}$$

Where: e = Sampling error of the volume or area total in question.

SE = Specified sampling error in table.

^{2/} By random-sampling formula (in percent).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ^{1/}
Seedlings	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

^{1/} Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots using a basal area factor of 37.5 at each sample location.

Overstocked--Over 130 percent

Fully stocked--100-130 percent

Medium stocked--60-99 percent

Poorly stocked--16.7-59 percent

Nonstocked--Less than 16.7 percent

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.6	61.0	68.2	60.0
8	68.4	68.1	76.0	68.4
10	73.4	73.1	81.4	73.4
12	76.7	76.7	85.2	76.4
14	78.9	79.4	88.2	78.4
16	80.9	81.6	90.4	79.8
18	81.9	83.3	92.3	80.8
20	83.3	84.8	93.8	81.5
22	84.3	86.0	95.1	82.1
24+	85.7	87.8	97.2	83.0
Average	73.2	70.8	87.6	73.8

COUNTY TABLES

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey in North Georgia was intended primarily to furnish inventory data for the Unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1.--Area, by land class and county, 1972

County	All land ^{1/}	Forest land				Nonforest land ^{2/}
		Total	Commercial forest	Unproductive forest	Productive- reserved	
----- Thousand acres -----						
Bartow	299.5	199.8	198.3	--	1.5	99.7
Catoosa	106.9	59.1	55.7	--	3.4	47.8
Chattooga	202.9	152.3	152.3	--	--	50.6
Cherokee	269.9	219.9	219.9	--	--	50.0
Dade	107.5	79.8	77.3	--	2.5	27.7
Dawson	134.9	112.1	111.9	--	0.2	22.8
Fannin	253.4	222.6	222.3	--	0.3	30.8
Floyd	328.9	213.3	213.3	--	--	115.6
Gilmer	281.0	246.4	246.4	--	--	34.6
Gordon	229.1	135.3	135.3	--	(3/)	93.8
Habersham	181.1	140.3	140.0	--	0.3	40.8
Lumpkin	186.9	166.5	166.3	--	0.2	20.4
Murray	218.9	159.2	157.3	--	1.9	59.7
Pickens	144.0	121.5	121.5	--	--	22.5
Rabun	237.5	214.8	213.2	--	1.6	22.7
Stephens	114.2	80.7	80.7	--	--	33.5
Towns	108.0	92.5	92.1	--	0.4	15.5
Union	201.7	169.7	166.8	--	2.9	32.0
Walker	284.8	182.4	181.4	--	1.0	102.4
White	155.5	133.1	133.1	--	--	22.4
Whitfield	179.8	107.4	107.4	--	--	72.4
Total	4,226.4	3,208.7	3,192.5	--	16.2	1,017.7

^{1/} From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

^{2/} Includes 32,300 acres of water according to Survey standards of area classification but defined by the Bureau of the Census as land.

^{3/} Less than 50 acres.

Table 2.--Area of commercial forest land, by ownership class and county, 1972

County	All ownerships	Ownership class									
		National Forest	Miscellaneous Federal	State	County and municipal	Forest industry ^{2/}	Farmer	Miscellaneous private			
								Corporate	Individual		
Thousand acres											
Bartow	198.3	--	7.8	--	(1/)	25.2	69.9	25.5	69.9		
Catoosa	55.7	--	1.6	--	--	4.2	31.2	6.2	12.5		
Chattooga	152.3	16.4	--	0.1	--	10.6	41.7	10.5	73.0		
Cherokee	219.9	--	9.5	--	0.1	44.3	35.6	41.5	88.9		
Dade	77.3	--	--	--	--	9.0	31.0	--	37.3		
Dawson	111.9	6.6	1.2	--	11.0	14.2	26.3	15.8	36.8		
Fannin	222.3	106.5	--	--	--	0.4	57.7	14.4	43.3		
Floyd	213.3	6.5	--	0.5	0.2	19.7	90.2	18.0	78.2		
Gilmer	246.4	52.5	3.8	(1/)	0.1	18.4	34.3	53.9	83.4		
Gordon	135.3	8.0	0.1	0.3	(1/)	22.9	34.7	6.9	62.4		
Habersham	140.0	40.2	--	0.2	(1/)	2.4	48.6	10.8	37.8		
Lumpkin	166.3	56.3	0.2	0.3	--	10.4	42.5	--	56.6		
Murray	157.3	49.9	1.1	--	0.1	19.9	36.0	--	50.3		
Pickens	121.5	--	--	(1/)	--	19.8	29.1	24.2	48.4		
Rabun	213.2	143.3	--	(1/)	--	--	11.7	15.5	42.7		
Stephens	80.7	21.6	1.6	--	0.3	3.6	26.8	--	26.8		
Towns	92.1	56.6	--	--	--	0.2	15.7	--	19.6		
Union	166.8	91.8	--	--	--	2.6	28.8	7.2	36.1		
Walker	181.4	19.0	--	0.3	(1/)	8.2	52.9	28.9	72.2		
White	133.1	41.9	--	0.2	--	3.3	38.2	9.6	38.3		
Whitfield	107.4	11.5	(1/)	--	0.2	11.5	39.3	5.6	39.3		
Total	3,192.5	728.6	26.9	3.7	12.0	250.8	822.2	294.5	1,053.8		

^{1/} Less than 50 acres.

^{2/} Not including 6,400 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3.--Area of commercial forest land, by forest-type group and county, 1972

County	All type groups	Forest-type groups						Thousand acres	
		White pine- hemlock	Longleaf- slash	Loblolly- shortleaf	Oak- pine	Oak- hickory	Elm-ash- cottonwood		
Bartow	198.3	--	6.4	99.4	31.8	60.7	--		
Catoosa	55.7	--	--	10.4	6.2	26.6	12.5		
Chattooga	152.3	--	--	35.5	44.8	66.8	5.2		
Cherokee	219.9	--	--	92.5	26.7	94.8	5.9		
Dade	77.3	--	--	--	18.6	58.7	--		
Dawson	111.9	--	--	26.3	20.5	65.1	--		
Fannin	222.3	--	--	28.9	41.4	152.0	--		
Floyd	213.3	--	--	83.1	47.8	76.4	6.0		
Gilmer	246.4	4.9	--	25.7	55.6	155.3	4.9		
Gordon	135.3	--	--	87.5	29.4	18.4	--		
Habersham	140.0	--	--	39.3	36.3	64.4	--		
Lumpkin	166.3	8.4	--	60.2	17.6	80.1	--		
Murray	157.3	--	--	68.0	32.0	57.3	--		
Pickens	121.5	--	--	48.4	29.1	44.0	--		
Rabun	213.2	13.0	--	50.8	50.6	98.8	--		
Stephens	80.7	--	--	37.1	12.7	30.9	--		
Towns	92.1	--	--	18.1	14.3	59.7	--		
Union	166.8	5.1	--	38.6	26.8	96.3	--		
Walker	181.4	--	--	46.6	38.4	96.4	--		
White	133.1	--	--	47.2	27.2	53.9	4.8		
Whitfield	107.4	--	--	64.1	11.4	26.3	5.6		
Total	3,192.5	31.4	6.4	1,007.7	619.2	1,482.9	44.9		

Table 4.--Area of commercial forest land, by stand-size class and county, 1972

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling- seedling	
- - - - - <u>Thousand acres</u> - - - - -					
Bartow	198.3	70.6	103.8	21.1	2.8
Catoosa	55.7	26.5	22.9	6.3	--
Chattooga	152.3	25.1	76.0	51.2	--
Cherokee	219.9	79.2	94.8	45.9	--
Dade	77.3	40.1	18.6	18.6	--
Dawson	111.9	54.6	42.1	15.2	--
Fannin	222.3	94.5	98.9	28.9	--
Floyd	213.3	36.1	112.5	64.7	--
Gilmer	246.4	122.3	94.5	24.7	4.9
Gordon	135.3	35.1	68.6	31.6	--
Habersham	140.0	78.2	48.6	13.2	--
Lumpkin	166.3	62.5	82.9	20.9	--
Murray	157.3	55.4	83.6	18.3	--
Pickens	121.5	58.5	43.6	14.5	4.9
Rabun	213.2	110.6	85.7	16.9	--
Stephens	80.7	48.4	26.8	5.5	--
Towns	92.1	43.2	44.8	4.1	--
Union	166.8	108.2	51.4	7.2	--
Walker	181.4	52.8	91.3	37.3	--
White	133.1	46.7	75.6	10.8	--
Whitfield	107.4	51.0	42.3	14.1	--
Total	3,192.5	1,299.6	1,409.3	471.0	12.6

Table 5.--Area of commercial forest land, by site class and county, 1972

County	All classes	Site class				
		1	2	3	4	5
- - - - - <u>Thousand acres</u> - - - - -						
Bartow	198.3	--	--	12.7	153.8	31.8
Catoosa	55.7	--	6.3	1.6	41.6	6.2
Chattooga	152.3	--	5.2	21.0	97.1	29.0
Cherokee	219.9	--	--	--	209.5	10.4
Dade	77.3	6.2	--	27.6	43.5	--
Dawson	111.9	--	10.5	10.0	91.4	--
Fannin	222.3	9.7	10.1	45.8	144.6	12.1
Floyd	213.3	--	--	24.1	136.5	52.7
Gilmer	246.4	11.5	27.8	43.8	143.7	19.6
Gordon	135.3	--	--	--	121.4	13.9
Habersham	140.0	--	5.4	45.8	83.4	5.4
Lumpkin	166.3	12.8	14.2	66.0	68.6	4.7
Murray	157.3	--	4.5	29.3	91.0	32.5
Pickens	121.5	--	--	--	121.5	--
Rabun	213.2	23.4	6.5	7.8	167.7	7.8
Stephens	80.7	--	--	23.7	57.0	--
Towns	92.1	18.1	--	4.1	51.1	18.8
Union	166.8	14.4	12.3	30.1	104.9	5.1
Walker	181.4	--	4.8	19.2	105.8	51.6
White	133.1	--	4.8	62.7	53.6	12.0
Whitfield	107.4	--	5.6	18.0	65.9	17.9
Total	3,192.5	96.1	118.0	493.3	2,153.6	331.5

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees, by county, 1972

County	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
----- <u>Thousand acres</u> -----						
Bartow	198.3	--	62.0	93.9	39.6	2.8
Catoosa	55.7	--	4.2	26.5	25.0	--
Chattooga	152.3	--	15.8	105.1	31.4	--
Cherokee	219.9	--	46.6	82.9	90.4	--
Dade	77.3	--	--	37.3	40.0	--
Dawson	111.9	5.2	5.2	64.3	37.2	--
Fannin	222.3	--	12.1	140.3	69.9	--
Floyd	213.3	--	60.9	134.4	18.0	--
Gilmer	246.4	--	25.8	96.1	119.6	4.9
Gordon	135.3	--	34.7	69.6	31.0	--
Habersham	140.0	--	21.6	87.7	30.7	--
Lumpkin	166.3	8.0	9.7	131.1	17.5	--
Murray	157.3	4.0	32.1	95.9	25.3	--
Pickens	121.5	--	4.8	53.3	58.5	4.9
Rabun	213.2	3.9	46.8	124.8	37.7	--
Stephens	80.7	6.7	31.0	37.6	5.4	--
Towns	92.1	6.3	18.0	28.5	39.3	--
Union	166.8	--	25.4	115.9	25.5	--
Walker	181.4	--	13.0	120.4	48.0	--
White	133.1	--	28.5	83.1	21.5	--
Whitfield	107.4	8.5	39.4	55.6	3.9	--
Total	3,192.5	42.6	537.6	1,784.3	815.4	12.6

^{1/} See stocking standards on page 12.

Table 7.--Volume of sawtimber and growing stock on commercial forest land, by species group and county, 1972

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet					Million cubic feet ^{1/}				
Bartow	440.7	284.3	--	40.6	115.8	187.0	116.5	0.3	14.2	56.0
Catoosa	165.1	42.6	--	25.9	96.6	59.0	11.1	--	10.5	37.4
Chattooga	258.1	149.7	--	28.1	80.3	117.0	60.2	--	10.5	46.3
Cherokee	433.4	283.9	--	49.9	99.6	170.5	102.7	--	25.0	42.8
Dade	159.1	28.1	3.0	12.7	115.3	61.1	9.3	0.6	6.8	44.4
Dawson	225.3	58.2	--	36.8	130.3	95.3	37.0	0.6	11.2	46.5
Fannin	681.1	56.8	73.8	104.1	446.4	251.7	26.3	20.1	41.1	164.2
Floyd	406.7	243.2	--	42.0	121.5	181.8	102.8	--	13.6	65.4
Gilmer	675.9	133.6	150.8	107.6	283.9	243.7	57.0	30.0	47.9	108.8
Gordon	216.8	128.4	--	15.6	72.8	101.0	62.1	--	7.2	31.7
Habersham	478.9	236.4	15.4	26.2	200.9	169.1	82.2	3.0	10.9	73.0
Lumpkin	582.9	136.9	105.7	62.2	278.1	217.9	74.6	21.9	22.0	99.4
Murray	456.5	192.5	68.9	23.6	171.5	187.2	92.5	13.8	14.0	66.9
Pickens	261.4	141.8	21.4	34.1	64.1	99.2	51.2	4.3	13.6	30.1
Rabun	842.0	315.1	206.5	63.3	257.1	285.4	98.0	47.0	30.3	110.1
Stephens	243.1	114.3	1.3	13.0	114.5	101.8	54.0	0.3	5.5	42.0
Towns	300.6	81.0	25.0	38.9	155.7	117.0	47.0	4.1	18.0	47.9
Union	767.8	143.9	85.1	71.6	467.2	246.2	50.1	18.5	26.8	150.8
Walker	295.8	94.4	2.6	22.2	176.6	141.7	52.2	1.7	13.1	74.7
White	430.5	154.4	21.2	51.3	203.6	170.4	73.7	4.8	21.6	70.3
Whitfield	391.2	249.5	--	43.2	98.5	147.5	91.5	--	14.5	41.5
Total	8,712.9	3,269.0	780.7	912.9	3,750.3	3,351.5	1,352.0	171.0	378.3	1,450.2

^{1/} Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet	Million board feet	Million board feet	Million board feet	Million board feet	Million cubic feet	Million cubic feet	Million cubic feet	Million cubic feet	Million cubic feet
Bartow	32.2	24.8	--	2.0	5.4	12.7	9.9	(1/)	0.7	2.1
Catoosa	10.0	2.0	--	2.2	5.8	2.1	0.4	--	0.6	1.1
Chattooga	20.2	13.2	--	1.9	5.1	7.6	4.8	--	0.8	2.0
Cherokee	31.2	24.4	--	3.8	3.0	9.5	6.5	--	1.6	1.4
Dade	11.3	2.0	0.2	4.7	4.4	3.1	1.5	(1/)	0.4	1.2
Dawson	13.9	7.3	--	2.2	4.4	5.2	2.9	0.1	0.7	1.5
Fannin	30.6	4.0	5.0	5.5	16.1	11.4	2.8	1.4	2.0	5.2
Floyd	26.6	18.9	--	1.6	6.1	11.1	7.5	--	1.1	2.5
Gilmer	37.7	10.7	8.1	6.4	12.5	10.6	3.3	1.6	2.5	3.2
Gordon	12.4	8.3	--	1.0	3.1	6.4	5.2	--	0.3	0.9
Habersham	24.7	14.0	0.5	1.3	8.9	6.9	4.3	0.1	0.6	1.9
Lumpkin	36.5	16.9	5.6	3.8	10.2	11.3	5.8	1.3	1.0	3.2
Murray	33.2	21.6	3.6	1.8	6.2	11.8	7.8	0.8	1.2	2.0
Pickens	19.0	11.6	1.1	2.1	4.2	5.5	3.6	0.2	0.8	0.9
Rabun	43.3	15.4	12.7	4.1	11.1	13.0	3.7	2.9	2.3	4.1
Stephens	12.2	8.2	0.1	0.4	3.5	4.6	3.2	(1/)	0.2	1.2
Towns	18.3	10.1	0.8	2.8	4.6	5.2	2.7	0.2	0.8	1.5
Union	34.3	9.4	4.3	4.2	16.4	9.3	2.4	1.6	1.3	4.0
Walker	17.1	7.4	1.0	1.3	7.4	8.7	5.6	0.1	0.7	2.3
White	24.8	14.4	1.5	2.3	6.6	9.5	5.6	0.3	1.4	2.2
Whitfield	30.8	23.7	--	2.5	4.6	9.9	7.1	--	1.5	1.3
Total	520.3	268.3	44.5	57.9	149.6	175.4	96.6	10.6	22.5	45.7

1/ Less than 50,000 cubic feet.

Table 9.--Annual removals of sawtimber and growing stock on commercial forest land, by species group and county, 1971

County	Sawtimber					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Million board feet	Million board feet	Million board feet	Million board feet	Million board feet	Million cubic feet	Million cubic feet	Million cubic feet	Million cubic feet	Million cubic feet
Bartow	10.0	8.4	--	--	1.6	2.6	2.2	--	--	0.4
Catoosa	11.6	1.7	--	--	9.9	2.9	0.7	--	--	2.2
Chattooga	10.8	10.1	--	--	0.7	3.6	3.1	--	0.1	0.4
Cherokee	24.7	18.0	--	0.9	5.8	8.9	5.9	--	0.6	2.4
Dade	10.4	2.5	--	--	7.9	2.9	0.4	--	0.2	2.3
Dawson	32.5	30.9	--	--	1.6	5.7	5.1	--	--	0.6
Fannin	21.6	1.4	1.2	0.6	18.4	6.2	1.3	0.3	0.1	4.5
Floyd	9.4	3.9	--	--	5.5	3.4	0.9	--	--	2.5
Gilmer	20.1	6.9	0.8	1.5	10.9	7.9	4.6	0.1	0.3	2.9
Gordon	11.7	5.0	--	1.6	5.1	3.4	1.7	--	0.6	1.1
Habersham	10.0	7.0	--	--	3.0	3.4	1.8	--	--	1.6
Lumpkin	5.5	1.2	--	--	4.3	1.2	0.2	--	--	1.0
Murray	13.6	10.7	--	1.9	1.0	5.5	4.4	--	0.6	0.5
Pickens	19.3	19.3	--	--	--	8.2	8.2	--	--	--
Rabun	32.8	5.3	--	10.8	16.7	7.8	1.2	--	2.2	4.4
Stephens	4.6	3.6	--	--	1.0	1.6	1.4	--	--	0.2
Towns	--	--	--	--	--	--	--	--	--	--
Union	13.6	6.7	4.3	--	2.6	3.6	2.4	0.7	--	0.5
Walker	9.9	4.7	--	1.5	3.7	5.3	3.1	--	0.3	1.9
White	1.5	1.5	--	--	--	1.2	0.7	--	--	0.5
Whitfield	3.4	2.8	--	--	0.6	3.5	3.3	--	--	0.2
Total	277.0	151.6	6.3	18.8	100.3	88.8	52.6	1.1	5.0	30.1

Table 10.--Area of commercial forest land, by forest type and ownership class, 1972

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Farmer	Misc. private
----- Thousand acres -----						
Softwood types:						
White pine-hemlock	31.4	26.2	0.3	--	--	4.9
Longleaf pine	6.4	--	--	--	--	6.4
Loblolly pine	377.9	3.9	9.7	64.1	111.9	188.3
Shortleaf pine	287.0	39.6	0.2	10.9	107.5	128.8
Virginia pine	325.0	45.4	3.7	26.3	118.0	131.6
Eastern redcedar	4.8	--	--	--	--	4.8
Pitch pine	13.0	13.0	--	--	--	--
Total	1,045.5	128.1	13.9	101.3	337.4	464.8
Hardwood types:						
Oak-pine	619.2	123.1	2.8	39.8	184.7	268.8
Oak-hickory	1,459.7	477.4	25.9	105.2	265.4	585.8
Southern scrub oak	23.2	--	--	4.5	18.7	--
Elm-ash-cottonwood	44.9	--	--	--	16.0	28.9
Total	2,147.0	600.5	28.7	149.5	484.8	883.5
All types	3,192.5	728.6	42.6	250.8	822.2	1,348.3

Table 11.--Area of commercial forest land, by ownership and stocking classes of growing-stock trees, 1972

Ownership classes	All classes	Stocking percentage ^{1/}				
		Over 130	100-130	60-99	16.7-59	Less than 16.7
		----- Thousand acres -----				
National Forest	728.6	14.3	81.4	411.5	221.4	--
Other public	42.6	--	14.2	16.8	11.6	--
Forest industry	250.8	6.9	70.2	96.4	74.5	2.8
Farmer	822.2	12.3	160.4	483.6	165.9	--
Misc. private	1,348.3	9.1	211.4	776.0	342.0	9.8
All ownerships	3,192.5	42.6	537.6	1,784.3	815.4	12.6

^{1/} See stocking standards on page 12.

Table 12.--Volume of timber on commercial forest land,
by class and species group, 1972

Class of timber	: All : species	: Pine	: Other : softwood	: Soft : hardwood	: Hard : hardwood
- - - - - <u>Million cubic feet</u> - - - - -					
Sawtimber trees:					
Saw-log portion	1,805.3	683.1	134.2	185.5	802.5
Upper-stem portion	239.8	83.6	16.4	26.2	113.6
Total	2,045.1	766.7	150.6	211.7	916.1
Poletimber trees	1,306.4	585.3	20.4	166.6	534.1
All growing-stock trees	3,351.5	1,352.0	171.0	378.3	1,450.2
Rough trees:					
Sawtimber-size trees	162.9	25.1	0.4	17.9	119.5
Poletimber-size trees	307.9	37.9	1.9	51.1	217.0
Total	470.8	63.0	2.3	69.0	336.5
Rotten trees:					
Sawtimber-size trees	110.6	--	0.3	24.8	85.5
Poletimber-size trees	18.0	--	--	7.5	10.5
Total	128.6	--	0.3	32.3	96.0
Salvable dead trees:					
Sawtimber-size trees	3.4	1.7	--	--	1.7
Poletimber-size trees	--	--	--	--	--
Total	3.4	1.7	--	--	1.7
Total, all timber	3,954.3	1,416.7	173.6	479.6	1,884.4

Table 13.--Number of growing-stock trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)														29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9						
----- Thousand trees -----																
Softwood:																
Longleaf pine	630	117	--	189	206	102	16	--	--	--	--	--	--	--	--	--
Loblolly pine	65,876	33,380	17,002	8,077	4,188	2,113	634	308	101	73	--	--	--	--	--	--
Shortleaf pine	69,838	32,132	19,897	10,414	5,159	1,562	443	128	71	32	--	--	--	--	--	--
Table-Mountain pine	165	--	117	35	--	--	--	13	--	--	--	--	--	--	--	--
Pitch pine	4,362	1,177	1,113	693	661	381	223	81	18	15	--	--	--	--	--	--
Virginia pine	61,279	30,681	17,748	8,607	2,818	1,009	323	83	10	--	--	--	--	--	--	--
Eastern white pine	8,985	3,080	1,480	1,308	997	536	680	302	283	303	--	--	--	--	--	--
Hemlock	857	227	185	265	52	20	30	24	19	25	--	--	--	--	--	--
Eastern redcedar	652	318	243	74	--	17	--	--	--	--	--	--	--	--	--	--
Total softwoods	212,644	101,112	57,785	29,662	14,081	5,740	2,349	939	502	448	--	--	--	--	--	--
Hardwood:																
Select white oaks ^{1/}	23,514	7,443	5,899	4,161	2,892	1,579	721	410	211	188	--	--	--	--	--	--
Select red oaks ^{2/}	7,346	2,045	1,310	1,638	756	458	364	343	206	186	--	--	--	--	--	--
Other white oaks	33,587	12,113	7,590	5,589	3,307	2,383	1,219	718	365	271	--	--	--	--	--	--
Other red oaks	39,272	12,948	8,944	6,508	4,969	2,996	1,548	784	383	192	--	--	--	--	--	--
Hickory	24,645	9,356	6,438	3,764	2,298	1,556	672	317	145	99	--	--	--	--	--	--
Hard maple	285	193	63	--	29	--	--	--	--	--	--	--	--	--	--	--
Soft maple	8,107	3,937	2,216	1,045	544	172	64	92	--	37	--	--	--	--	--	--
Beech	95	--	--	39	--	19	16	--	11	10	--	--	--	--	--	--
Sweetgum	6,373	3,193	1,658	693	467	117	139	40	32	34	--	--	--	--	--	--
Flackgum	3,755	1,712	758	863	209	99	61	14	39	--	--	--	--	--	--	--
Ash	1,706	548	620	313	175	--	--	50	--	--	--	--	--	--	--	--
Basswood	395	168	--	69	57	37	44	12	--	8	--	--	--	--	--	--
Flack walnut	150	127	--	--	23	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	19,897	7,488	5,053	2,645	2,083	1,280	794	281	153	113	--	--	--	--	--	--
Elm	1,273	722	251	120	87	45	29	11	8	--	--	--	--	--	--	--
Black cherry	820	429	182	110	50	20	18	11	--	--	--	--	--	--	--	--
Sycamore	297	143	54	--	31	23	27	14	--	--	--	--	--	--	--	--
Other eastern hardwoods	4,520	2,603	851	519	287	155	32	48	10	15	--	--	--	--	--	--
Total hardwoods	176,037	65,168	41,887	28,076	18,264	10,939	5,748	3,145	1,563	1,153	--	--	--	--	--	--
All species	388,681	166,280	99,672	57,738	32,345	16,679	8,097	4,084	2,065	1,601	--	--	--	--	--	--

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 14.--Volume of all live trees on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)												29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9				
		Million cubic feet												
Softwood:														
Longleaf pine	10.0	0.2	--	2.8	4.1	2.3	0.6	--	--	--	--	--	--	--
Loblolly pine	441.7	85.4	104.3	84.4	69.1	51.7	20.8	14.3	5.0	6.7	--	--	--	--
Shortleaf pine	491.1	82.4	123.4	118.8	93.7	40.3	17.6	7.1	4.9	2.9	--	--	--	--
Table-Mountain pine	1.6	--	0.7	0.4	--	--	--	0.5	--	--	--	--	--	--
Pitch pine	53.2	2.5	6.9	7.0	13.1	9.1	8.4	3.9	1.2	1.1	--	--	--	--
Virginia pine	417.4	99.5	117.9	105.6	51.0	27.5	11.1	4.1	0.7	--	--	--	--	--
Eastern white pine	155.3	9.5	9.4	13.8	17.7	13.5	24.1	14.8	18.3	31.8	--	--	--	--
Hemlock	15.3	0.4	0.9	3.3	1.0	0.5	1.2	1.4	1.3	3.2	--	--	--	--
Eastern redcedar	3.0	0.7	1.4	0.6	--	0.3	--	--	--	--	--	--	--	--
Total softwoods	1,588.6	280.6	364.9	336.7	249.7	145.2	83.8	46.1	31.4	45.7	--	--	--	4.5
Hardwood:														
Select white oaks ^{1/}	314.4	26.0	43.2	52.1	56.6	45.2	29.5	21.1	14.9	23.1	--	--	--	2.7
Select red oaks ^{2/}	146.2	7.9	10.0	19.5	15.9	15.0	14.9	19.7	14.6	20.7	--	--	--	8.0
Other white oaks	470.7	40.0	59.8	74.6	71.5	69.6	51.8	38.9	26.3	31.8	--	--	--	6.4
Other red oaks	509.9	40.8	68.5	84.5	92.1	79.4	56.1	41.9	25.0	20.8	--	--	--	0.8
Hickory	274.7	30.0	41.3	44.7	42.5	47.1	28.4	16.6	12.3	11.5	--	--	--	0.3
Hard maple	1.1	0.8	0.3	--	0.3	--	--	--	--	--	--	--	--	--
Soft maple	95.9	18.9	21.0	18.0	12.8	8.2	5.0	5.0	1.8	4.6	--	--	--	0.6
Beech	8.5	--	0.3	0.4	0.5	0.5	1.3	1.9	0.4	3.2	--	--	--	--
Sweetgum	52.8	8.1	10.3	9.0	9.0	4.2	5.6	2.2	2.0	2.4	--	--	--	--
Blackgum	50.8	8.7	8.9	10.8	6.5	4.6	4.6	2.5	2.7	1.5	--	--	--	--
Ash	21.0	2.4	5.6	5.4	4.1	1.2	--	2.3	--	--	--	--	--	--
Basswood	8.0	0.6	--	1.1	1.0	1.6	1.7	1.0	--	1.0	--	--	--	--
Black walnut	0.6	0.3	--	--	0.3	--	--	--	--	--	--	--	--	--
Yellow-poplar	230.2	22.8	32.9	32.9	39.2	36.1	29.4	13.9	10.5	10.7	--	--	--	1.8
Elm	13.4	1.7	2.9	1.4	2.3	2.4	1.2	0.9	0.6	--	--	--	--	--
Black cherry	11.4	3.7	3.4	1.2	0.8	0.5	0.5	1.0	--	0.3	--	--	--	--
Sycamore	5.4	1.2	0.4	0.3	0.6	0.9	0.8	0.6	--	--	--	--	--	0.6
Other eastern hardwoods	147.0	52.5	33.3	22.4	16.6	11.6	3.2	3.6	1.4	2.4	--	--	--	--
Total hardwoods	2,362.3	266.4	342.1	378.3	372.6	358.1	234.0	173.1	112.5	134.0	--	--	--	21.2
All species	3,950.9	547.0	707.0	715.0	622.3	473.3	317.8	219.2	143.9	179.7	--	--	--	25.7

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 15.--Volume of growing stock on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)											29.0 and larger
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9			
Softwood:													
----- Million cubic feet -----													
Longleaf pine	9.5	0.2	--	2.3	4.1	2.3	0.6	--	--	--	--	--	--
Loblolly pine	422.7	79.0	98.4	82.2	67.5	50.8	19.8	13.8	5.0	6.2	--	--	--
Shortleaf pine	478.9	78.8	118.3	116.4	92.6	40.3	17.6	7.1	4.9	2.9	--	--	--
Table-Mountain pine	1.6	--	0.7	0.4	--	--	--	0.5	--	--	--	--	--
Pitch pine	52.2	2.4	6.3	7.0	12.8	9.1	8.4	3.9	1.2	1.1	--	--	--
Virginia pine	387.1	90.2	111.0	98.8	47.1	24.1	11.1	4.1	0.7	--	--	--	--
Eastern white pine	152.9	8.8	8.4	13.8	17.3	13.5	24.1	14.8	18.3	31.5	2.4	2.4	2.4
Hemlock	15.3	0.4	0.9	3.3	1.0	0.5	1.2	1.4	1.3	3.2	2.1	2.1	2.1
Eastern redcedar	2.8	0.7	1.2	0.6	--	0.3	--	--	--	--	--	--	--
Total softwoods	1,523.0	260.5	345.2	324.8	242.4	140.9	82.8	45.6	31.4	44.9	4.5	4.5	4.5
Hardwood:													
Select white oaks ^{1/}	269.1	20.1	34.9	47.1	50.0	41.6	25.5	18.5	12.7	16.7	2.0	2.0	2.0
Select red oaks ^{2/}	126.2	5.6	7.8	17.5	14.1	12.3	13.4	16.6	13.3	17.8	7.8	7.8	7.8
Other white oaks	352.7	28.4	42.7	56.6	54.5	55.7	40.0	30.0	19.6	21.1	4.1	4.1	4.1
Other red oaks	428.1	33.1	51.8	71.1	78.5	70.9	49.6	34.8	22.4	15.9	--	--	--
Hickory	232.6	21.3	35.4	35.7	40.0	41.1	24.7	15.5	9.5	9.4	--	--	--
Hard maple	1.4	0.8	0.3	--	0.3	--	--	--	--	--	--	--	--
Soft maple	60.1	12.1	13.7	11.5	9.5	4.4	2.3	3.9	--	2.7	--	--	--
Beech	2.5	--	--	0.4	--	0.5	0.7	--	0.4	0.5	--	--	--
Sweetgum	44.8	5.4	8.3	7.9	8.6	3.0	5.3	1.9	2.0	2.4	--	--	--
Blackgum	26.1	4.4	3.8	8.0	3.4	2.1	1.7	0.6	2.1	--	--	--	--
Ash	13.3	1.4	3.8	3.4	2.9	--	--	1.8	--	--	--	--	--
Basswood	6.9	0.6	--	1.1	1.0	1.3	1.7	0.6	--	0.6	--	--	--
Black walnut	0.6	0.3	--	--	0.3	--	--	--	--	--	--	--	--
Yellow-poplar	214.5	19.8	29.8	29.4	37.8	35.3	28.5	13.0	9.5	9.6	1.8	1.8	1.8
Elm	9.0	1.7	1.2	1.0	1.5	1.4	1.2	0.4	0.6	--	--	--	--
Black cherry	5.9	1.0	1.1	1.2	0.8	0.5	0.5	0.8	--	--	--	--	--
Sycamore	4.0	0.4	0.4	--	0.6	0.6	0.8	0.6	--	--	0.6	0.6	0.6
Other eastern hardwoods	30.7	6.8	5.6	5.0	4.9	3.4	1.1	2.0	0.6	1.3	--	--	--
Total hardwoods	1,828.5	163.2	240.6	296.9	308.7	274.1	197.0	141.0	92.7	98.0	16.3	16.3	16.3
All species	3,351.5	423.7	585.8	621.7	551.1	415.0	279.8	186.6	124.1	142.9	20.8	20.8	20.8

^{1/} Includes white and swamp chestnut oaks.

^{2/} Includes cherrybark, northern red, and Shumard oaks.

Table 16.--Volume of sawtimber on commercial forest land, by species and diameter class, 1972

Species	All classes	Diameter class (inches at breast height)										29.0 and larger	
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9					
----- Million board feet -----													
Softwood:													
Longleaf pine	45.4	9.8	20.3	12.1	3.2	--	--	--	--	--	--	--	--
Loblolly pine	1,093.7	285.1	293.9	254.2	108.0	81.0	30.6	40.9	--	--	--	--	--
Shortleaf pine	1,214.2	420.9	407.6	200.5	95.7	41.2	29.4	18.9	--	--	--	--	--
Tallie-Mountain pine	4.4	1.4	--	--	--	3.0	--	--	--	--	--	--	--
Pitch pine	197.3	22.3	53.2	43.0	43.5	21.8	7.1	6.1	--	--	--	--	--
Virginia pine	714.0	335.0	190.5	108.9	54.5	21.5	3.6	--	--	--	--	--	--
Eastern white pine	704.5	47.1	72.8	63.5	124.9	81.6	105.6	193.6	--	--	--	15.4	--
Hemlock	72.3	11.1	4.1	2.4	6.1	7.3	--	19.4	--	--	--	14.2	--
Eastern redcedar	3.9	2.5	--	1.4	--	--	--	--	--	--	--	--	--
Total softwoods	4,049.7	1,135.2	1,042.4	686.0	435.9	257.4	184.0	279.2	--	--	--	29.6	--
Hardwood:													
Select white oaks ^{1/}	680.9	--	160.7	160.3	109.2	86.2	62.8	89.6	--	--	--	12.1	--
Select red oaks ^{2/}	406.5	--	45.4	45.8	54.5	71.9	60.1	86.7	--	--	--	42.1	--
Other white oaks	911.5	--	176.5	210.2	167.3	133.6	93.7	107.7	--	--	--	22.5	--
Other red oaks	1,099.5	--	255.4	274.2	213.7	161.2	110.8	84.2	--	--	--	--	--
Hickory	590.7	--	136.0	164.6	111.4	76.4	49.2	52.4	--	--	--	--	--
Hard maple	1.2	--	1.2	--	--	--	--	--	--	--	--	--	--
Soft maple	85.6	--	29.2	16.4	9.2	17.3	--	13.5	--	--	--	--	--
Teach	8.3	--	--	1.8	2.9	--	1.5	2.1	--	--	--	--	--
Sweet gum	103.8	--	30.1	12.9	25.5	9.8	11.0	14.5	--	--	--	--	--
Black gum	38.2	--	10.9	7.9	7.1	2.6	9.7	--	--	--	--	--	--
Ash	17.1	--	9.0	--	--	8.1	--	--	--	--	--	--	--
Boxwood	20.4	--	2.8	4.9	7.1	2.7	--	2.9	--	--	--	--	--
Black walnut	1.0	--	1.0	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	603.9	--	131.2	143.9	135.3	67.4	52.5	56.8	--	--	--	11.8	--
Elm	20.1	--	4.9	5.5	4.9	1.7	3.1	--	--	--	--	--	--
Black cherry	8.1	--	2.5	1.6	1.7	2.3	--	--	--	--	--	--	--
Aycamore	13.5	--	1.4	2.2	3.3	2.9	--	--	--	--	--	3.7	--
Other eastern hardwoods	52.9	--	16.7	12.8	4.6	9.0	2.6	7.2	--	--	--	--	--
Total hardwoods	4,663.2	--	1,014.9	1,070.0	857.7	653.1	457.7	517.6	--	--	--	92.2	--
All species	8,712.9	1,135.2	2,057.3	1,756.0	1,293.6	910.5	641.7	796.8	--	--	--	121.8	--

^{1/} Includes white and swamp chestnut oaks.^{2/} Includes cherrybark, northern red, and shumard oaks.

Table 17.--Net annual growth and removals of growing stock on commercial forest land, by species, 1971

Species	Net annual growth	Annual timber removals
- - - - <u>Million cubic feet</u> - - - -		
Softwood:		
Yellow pines	96.6	52.6
Eastern white pine	9.5	1.1
Other eastern softwoods	1.1	--
Total softwoods	107.2	53.7
Hardwood:		
Select white and red oaks	13.0	11.1
Other white and red oaks	24.9	14.9
Hickory	5.7	2.9
Hard maple	0.1	--
Sweetgum	3.0	1.7
Ash, walnut, and black cherry	0.9	0.8
Yellow-poplar	13.1	2.4
Blackgum	0.4	0.2
Other eastern hardwoods	7.1	1.1
Total hardwoods	68.2	35.1
All species	175.4	88.8

Table 18.--Net annual growth and removals of sawtimber on commercial forest land, by species, 1971

Species	Net annual growth	Annual timber removals
- - - - Million board feet - - - -		
Softwood:		
Yellow pines	268.3	151.6
Eastern white pine	41.2	6.3
Other eastern softwoods	3.3	--
Total softwoods	312.8	157.9
Hardwood:		
Select white and red oaks	42.9	40.6
Other white and red oaks	83.7	48.0
Hickory	18.1	6.7
Hard maple	0.1	--
Sweetgum	7.5	5.3
Ash, walnut, and black cherry	3.6	3.5
Yellow-poplar	37.7	12.0
Blackgum	1.2	--
Other eastern hardwoods	12.7	3.0
Total hardwoods	207.5	119.1
All species	520.3	277.0

Table 19.--Mortality of growing stock and sawtimber on commercial forest land, by species, 1971

Species	Growing stock	Sawtimber
Million cubic feet Million board feet		
Softwood:		
Yellow pines	5.7	13.0
Eastern white pine	0.5	3.4
Other eastern softwoods	--	--
Total softwoods	6.2	16.4
Hardwood:		
Select white and red oaks	3.7	10.7
Other white and red oaks	4.5	13.0
Hickory	2.2	7.5
Hard maple	--	--
Sweetgum	--	--
Ash, walnut, and black cherry	0.3	0.8
Yellow-poplar	0.3	1.5
Blackgum	0.1	0.3
Other eastern hardwoods	1.3	2.4
Total hardwoods	12.4	36.2
All species	18.6	52.6

Table 20.--Volume of all live trees and growing stock on commercial forest land, by ownership class and species group, 1972

Ownership class	All live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
						Million cubic feet				
National Forest	1,162.7	207.3	114.6	147.0	693.8	972.5	202.2	113.3	121.0	536.0
Other public	72.8	28.0	--	16.1	28.7	63.8	25.7	--	13.2	24.9
Forest industry	251.0	128.2	3.2	25.4	94.2	218.5	122.8	3.2	18.5	74.0
Farmer	939.3	464.2	11.0	109.5	354.6	820.0	439.5	10.3	87.6	282.6
Miscellaneous private	1,525.1	587.3	44.8	181.6	711.4	1,276.7	561.8	44.2	138.0	532.7
All ownerships	3,920.9	1,415.0	173.6	479.6	1,882.7	3,351.5	1,352.0	171.0	378.3	1,450.2

Table 21.--Volume of sawtimber on commercial forest land, by ownership class and species group, 1972

Ownership class	Small sawtimber ^{1/}					Large sawtimber ^{2/}				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
						Million board feet				
National Forest	1,270.1	489.7	152.9	119.1	508.4	1,839.4	188.6	367.0	205.8	1,078.0
Other public	105.1	36.4	--	29.4	39.3	111.0	58.6	--	12.9	39.5
Forest industry	316.5	201.0	--	22.1	93.4	146.1	35.9	16.0	14.9	79.3
Farmer	1,275.2	802.3	8.9	88.2	375.8	507.3	112.1	35.3	124.8	235.1
Miscellaneous private	1,981.6	1,129.3	43.1	159.6	649.6	1,160.6	215.1	157.5	136.1	651.9
All ownerships	4,948.5	2,658.7	204.9	418.4	1,666.5	3,764.4	610.3	575.8	494.5	2,083.8

^{1/} Volume of sawtimber trees less than 15.0 inches at d.b.h.^{2/} Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 22.--Net annual growth and removals of growing stock on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All : species :	Pine :	Other : softwood :	Soft : hardwood :	Hard : hardwood :	All : species :	Pine :	Other : softwood :	Soft : hardwood :	Hard : hardwood :
----- Million cubic feet -----										
National Forest	38.2	9.4	7.0	6.6	15.2	9.6	3.7	0.3	0.2	5.4
Other public	2.5	1.2	--	0.6	0.7	1.4	--	--	0.2	1.2
Forest industry	14.4	10.2	0.2	1.4	2.6	13.5	8.9	--	0.6	4.0
Farmer	48.8	33.8	0.9	5.1	9.0	24.3	13.3	0.7	1.0	9.3
Miscellaneous private	71.5	42.0	2.5	8.8	18.2	40.0	26.7	0.1	3.0	10.2
All ownerships	175.4	96.6	10.6	22.5	45.7	88.8	52.6	1.1	5.0	30.1

Table 23.--Net annual growth and removals of sawtimber on commercial forest land, by ownership class and species group, 1971

Ownership class	Net annual growth					Annual timber removals				
	All : species :	Pine :	Other : softwood :	Soft : hardwood :	Hard : hardwood :	All : species :	Pine :	Other : softwood :	Soft : hardwood :	Hard : hardwood :
----- Million board feet -----										
National Forest	133.8	34.1	29.2	15.0	55.5	40.6	13.8	1.2	0.6	25.0
Other public	12.2	6.0	--	2.8	3.4	6.8	--	--	0.9	5.9
Forest industry	42.0	30.9	0.8	2.6	7.7	34.1	22.7	--	--	11.4
Farmer	136.9	90.5	3.4	14.1	28.9	65.1	33.2	4.3	2.4	25.2
Miscellaneous private	195.4	106.8	11.1	23.4	54.1	130.4	81.9	0.8	14.9	32.8
All ownerships	520.3	268.3	44.5	57.9	149.6	277.0	151.6	6.3	18.8	100.3

Table 24.--Average net volume per acre of sawtimber, growing stock, and other live timber^{1/} on commercial forest land, by ownership class, major forest type, and species group, 1972

Forest type, species group, and class of material	All ownerships		Ownership class									
			National Forest		Other public		Forest industry		Farmer		Misc. private	
	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet	Board feet	Cubic feet
Pine types:												
Growing stock:												
Softwood	2,417	1,001	4,953	1,441	7,187	1,725	1,464	826	2,118	1,038	2,153	894
Hardwood	362	174	554	268	206	78	156	86	373	183	367	171
Total	2,779	1,175	5,507	1,709	7,393	1,803	1,620	912	2,491	1,221	2,520	1,065
Other timber:												
Softwood	--	40	--	17	--	202	--	30	--	45	--	40
Hardwood	--	53	--	105	--	15	--	26	--	40	--	59
Total	--	93	--	122	--	217	--	56	--	85	--	99
Oak-pine types:												
Growing stock:												
Softwood	1,589	520	3,327	796	--	596	339	215	848	388	1,549	533
Hardwood	1,074	472	1,470	569	254	64	637	180	1,120	488	955	474
Total	2,663	992	4,797	1,365	254	660	976	395	1,968	876	2,504	1,007
Other timber:												
Softwood	--	29	--	21	--	--	--	23	--	54	--	18
Hardwood	--	161	--	225	--	--	--	79	--	129	--	171
Total	--	190	--	246	--	--	--	102	--	183	--	189
Upland hardwood types:												
Growing stock:												
Softwood	362	108	497	119	557	107	472	108	360	126	230	90
Hardwood	2,382	887	3,615	1,206	4,103	1,289	1,437	655	1,601	722	1,893	744
Total	2,744	995	4,112	1,325	4,660	1,396	1,909	763	1,961	848	2,123	834
Other timber:												
Softwood	--	4	--	4	--	--	--	5	--	2	--	5
Hardwood	--	244	--	312	--	230	--	180	--	188	--	230
Total	--	248	--	316	--	230	--	185	--	190	--	235
Bottomland hardwood types:												
Growing stock:												
Softwood	272	54	--	--	--	--	--	--	276	76	270	42
Hardwood	1,750	750	--	--	--	--	--	--	2,827	1,082	1,123	556
Total	2,022	804	--	--	--	--	--	--	3,103	1,158	1,393	598
Other timber:												
Softwood	--	--	--	--	--	--	--	--	--	--	--	--
Hardwood	--	336	--	--	--	--	--	--	--	269	--	374
Total	--	336	--	--	--	--	--	--	--	269	--	374
All types:												
Growing stock:												
Softwood	1,269	477	1,718	452	2,074	562	892	445	1,183	555	1,140	447
Hardwood	1,461	573	2,740	942	2,645	832	740	326	1,017	457	1,178	495
Total	2,730	1,050	4,458	1,394	4,719	1,394	1,632	771	2,200	1,012	2,318	942
Other timber:												
Softwood	--	21	--	9	--	48	--	19	--	31	--	19
Hardwood	--	167	--	264	--	147	--	96	--	116	--	164
Total	--	188	--	273	--	195	--	115	--	147	--	183
All timber	2,730	1,238	4,458	1,667	4,719	1,589	1,632	886	2,200	1,159	2,318	1,125

^{1/} Rough and rotten trees.

Table 25.--Land area, by class, major forest type,
and survey completion date, 1953, 1961, and 1972

Land use class	Survey completion date			Change 1961-1972
	1953	1961	1972	
- - - - - <u>thousand acres</u> - - - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	1,534.7	1,504.7	1,664.7	+160.0
Hardwood types	1,544.1	1,772.7	1,527.8	-244.9
Total	3,078.8	3,277.4	3,192.5	- 84.9
Noncommercial forest land:				
Productive-reserved	13.6	14.9	16.2	+ 1.7
Unproductive	13.5	2.5	--	- 2.5
Total	27.1	17.0	16.2	- 0.8
Nonforest land:				
Cropland	761.0	483.3	278.6	-204.7
Pasture and range	176.3	210.4	435.1	+156.2
Other	165.3	146.1	211.2	+125.1
Total	1,102.6	908.8	925.4	+ 76.6
All land ^{1/}	4,205.1	4,203.2	4,194.1	- 9.1

^{1/} Excludes all water areas.

^{2/} These figures differ slightly from reported figures because of revision in the estimates of land area.

Table 26.--Volume^{1/} of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date

Species group	Year	All classes	Diameter class (inches at breast height)									
			5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0 and larger	
SAWTIMBER (in million board feet)												
Softwood	1953	1,948.5	--	--	536.4	525.6	341.6	264.7	100.9	44.4	134.9	
	1961	2,185.6	--	--	613.2	585.5	421.1	179.4	163.4	81.0	142.0	
	1972	4,049.7	--	--	1,135.2	1,042.4	686.0	435.9	257.4	184.0	308.8	
Hardwood	1953	3,438.2	--	--	--	782.9	721.3	582.5	401.6	328.0	621.9	
	1961	3,306.6	--	--	--	770.9	771.8	569.5	449.4	307.4	437.6	
	1972	4,663.2	--	--	--	1,014.9	1,070.0	857.7	653.1	457.7	609.8	
GROWING STOCK (in million cubic feet)												
Softwood	1953	761.1	151.8	166.1	153.5	122.2	70.2	50.3	17.9	7.5	21.6	
	1961	910.5	199.7	213.2	175.4	136.2	86.5	34.1	28.9	13.8	22.7	
	1972	1,523.0	260.5	345.2	324.8	242.4	140.9	82.8	45.6	31.4	49.4	
Hardwood	1953	1,398.5	118.2	201.3	252.7	238.1	184.7	133.8	86.7	66.4	116.6	
	1961	1,385.8	138.6	196.8	246.2	234.5	197.6	130.8	97.0	62.3	82.0	
	1972	1,828.5	163.2	240.6	296.9	308.7	274.1	197.0	141.0	92.7	114.3	
ALL LIVE TIMBER (in million cubic feet)												
Softwood	1953	794.5	163.3	175.4	159.1	125.9	72.3	50.9	18.1	7.6	21.9	
	1961	951.9	214.9	225.1	181.9	140.3	89.1	34.5	29.3	13.8	23.0	
	1972	1,588.6	280.6	364.9	336.7	249.7	145.2	83.8	46.1	31.4	50.2	
Hardwood	1953	1,814.3	193.6	286.2	321.7	287.4	221.1	158.9	106.5	80.7	158.2	
	1961	1,801.2	226.9	279.9	313.4	283.0	236.6	155.4	119.1	75.6	111.3	
	1972	2,362.3	266.4	342.1	378.3	372.6	328.1	234.0	173.1	112.5	155.2	

^{1/} To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Knight, Herbert A.

1973. Forest statistics for North Georgia, 1972. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-25, 34 pp.

Commercial forests occupy 3.2 million acres, or 75 percent of the total land in the 21-county area of North Georgia. There has been less forestry activity in this area than in any other part of the State. In the latest Forest Survey, 7 out of every 10 acres now classified as commercial forest showed no evidence of treatment or major disturbance over the past 11 years. Since 1961, area of commercial forest has decreased by less than 3 percent, while the inventory of softwood and hardwood growing stock has increased by 67 and 32 percent, respectively. Net annual growth averages 55 cubic feet per acre of commercial forest land, almost double the volume of annual timber removals.

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Knight, Herbert A.

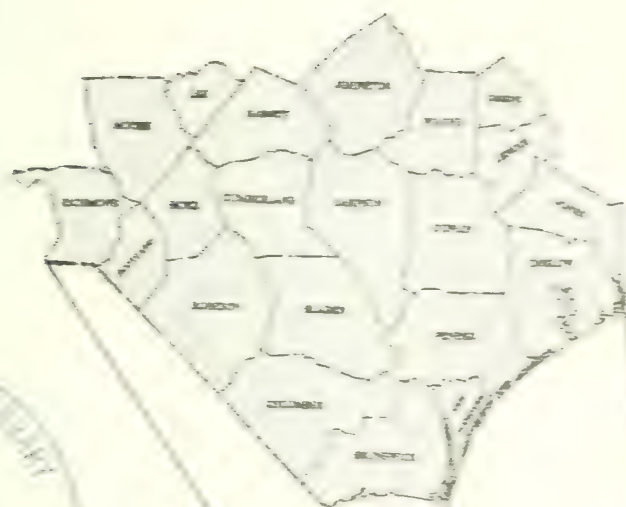
1973. Forest statistics for North Georgia, 1972. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-25, 34 pp.

Commercial forests occupy 3.2 million acres, or 75 percent of the total land in the 21-county area of North Georgia. There has been less forestry activity in this area than in any other part of the State. In the latest Forest Survey, 7 out of every 10 acres now classified as commercial forest showed no evidence of treatment or major disturbance over the past 11 years. Since 1961, area of commercial forest has decreased by less than 3 percent, while the inventory of softwood and hardwood growing stock has increased by 67 and 32 percent, respectively. Net annual growth averages 55 cubic feet per acre of commercial forest land, almost double the volume of annual timber removals.

Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina



*Forest Statistics
for the
Southern Coastal Plain
of
North Carolina
1973*



FOREWORD

This report highlights the principal findings of the fourth inventory of the timber resource in the Southern Coastal Plain of North Carolina. The inventory was started in November 1972 and completed in August 1973. Three previous inventories, completed in 1937, 1952, and 1962, provide statistics for measuring changes and trends over the past 36 years. In this report, the primary emphasis is on the changes and trends since 1962.

Forest Resources Research, authorized by the McSweeney-McNary Forest Research Act of 1928, is a continuing, nationwide undertaking by the regional experiment stations of the Forest Service, USDA. In Florida, Georgia, North Carolina, South Carolina, and Virginia, Forest Resources Research is administered through the Southeastern Forest Experiment Station, with headquarters at Asheville, North Carolina. The objective of the statewide timber inventories is to periodically measure and evaluate the timber resource. These inventories provide information on the extent and condition of the forest lands, volume of timber, and rates of timber growth and removals. These data and evaluations help provide a basis for the formulation of forest policies and programs and the orderly development and use of the resource.

The 21-county area covered by this report is one of four survey units in North Carolina. Comparable reports for the other three units will be issued as the Statewide inventory progresses. When completed, this inventory will provide updated statistics on the timber resource for all of North Carolina.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the North Carolina Forest Service of the State Department of Natural and Economic Resources and forest industry in the collection of the field data. Appreciation is also expressed for the excellent cooperation of other public agencies and private landowners in providing information and access to the sample locations.


JOE P. MCCLURE
Project Leader

Forest Statistics
for the
Southern Coastal Plain of North Carolina
1973

by
Noel D. Cost, Resource Analyst

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HIGHLIGHTS

Since 1962 in the Southern Coastal Plain of North Carolina--

- area of commercial forest land has decreased by 275,000 acres, or almost 5 percent. Some 367,000 acres of commercial forest were diverted to other land uses, while only 92,000 acres of new forest were added. More than half of the diversion was to urban development, and most of the remaining diversion was to agricultural use, primarily cropland. Commercial forest land now occupies about 5.4 million acres, or 64 percent of the total land area.
- area of commercial forest land owned by farmers has declined from 2.7 to 2.4 million acres. Land clearing accounted for more than half of this decrease and the remaining change was attributed to shifts in ownership, mostly from the farmer to the miscellaneous private class. Collectively, private nonindustrial owners still hold 4.0 million acres, or 74 percent of the commercial forest land. There has been little change in the public and forest industry ownership classes. Forest lands under long-term lease to forest industries increased from 92,000 to 122,000 acres. Altogether, forest industries either own or lease more than 1 million acres, or 19 percent of the commercial forest area.
- about 44 percent of the commercial forest land has either been harvested, regenerated, treated, or disturbed. Harvesting or intermediate cutting occurred on one out of every three acres. More than 430,000 acres were artificially reforested during this 11-year period; however, the backlog of poorly stocked stands in need of regeneration or conversion was estimated at more than 1.2 million acres. Seventy-four percent of the artificial reforestation was on lands owned or leased by forest industries, 16 percent was on other private lands, and the remaining 10 percent was on public holdings. In addition to the acres treated, 6 percent of the commercial forest land was significantly disturbed by insects, disease, wildfire, or other damaging agents.
- average stand density measured in basal area per acre of all live trees 5.0 inches d.b.h. and larger has increased from 50 to 56 square feet. Still, only one acre in four is fully stocked with growing-stock trees, and about one-third of the stands are less than 60 percent stocked with growing-stock trees. Therefore, current net growth, which averages about 46 cubic feet per acre annually, could be increased substantially.

--volume of softwood growing stock, primarily pine, has increased from 2.6 to 3.0 billion cubic feet, or by 13 percent. The increase was 16 percent between 1952 and 1962. All softwood species showed gains in volume, but loblolly and longleaf pine accounted for about two-thirds of the recent increase. Of the major softwood species, pond pine made the smallest gain. The increase extended across the range of tree sizes, except for the 8-inch diameter class. The inventory includes 10.0 billion board feet of softwood sawtimber.

--volume of hardwood growing stock has increased from 2.1 to 2.3 billion cubic feet, or by 11 percent. The increase between 1952 and 1962 was 3 percent. The oaks, yellow-poplar, elm, and hickory accounted for most of the recent increase. There was little change in the volume of sweetgum, maple, and ash. Volume of blackgum and tupelo was down by 15 percent. When all hardwood species were grouped, there was an increase in volume across the range of diameter classes. The inventory includes 6.2 billion board feet of hardwood sawtimber.

In 1972--

--net growth of growing stock totaled 246 million cubic feet and exceeded removals by 54 million cubic feet, or 22 percent. By species groups, 63 percent of the growth over removals was hardwood, 32 percent was pine, and 5 percent was other softwood. By ownership classes, over 90 percent of the growth over removals was on private, nonindustrial lands. On lands owned and leased by forest industries, removals exceeded net growth by 8 percent. This deficit is attributable to the strong demand for timber and the high rate of conversion to pine plantations. On public lands, net growth exceeded removals by about 38 percent. Across all species and ownership classes, the net growth included 918 million board feet of sawtimber.

--removals of growing stock totaled 192 million cubic feet and included almost 720 million board feet of sawtimber. A disproportionately high share of these removals was pine. For example, pine made up 53 percent of the inventory, accounted for 63 percent of the net growth, but provided 71 percent of the removals. In 1962, pine provided only about 55 percent of the removals. Although there has been a threefold increase in hardwood pulpwood production in this area since 1962, total removal of hardwood was down.

--mortality of growing stock totaled 31 million cubic feet and reduced gross growth by 11 percent. About 58 percent of this mortality was softwood. Total mortality included 79 million board feet of sawtimber.

HOW THE FOREST SURVEY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until the total is large enough to meet the desired degree of reliability. The basic steps of the survey procedure were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 29,753 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 2,496 of the 16-point clusters was ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provides a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 1,588 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5 inches d.b.h. were tallied on a portion of the fixed-radius plots around the point centers.
3. Equations prepared from detailed measurements collected on standing trees at 21 sample locations in the Southern Coastal Plain of North Carolina, and similar measurements taken throughout the Southeast, were used to compute the volumes of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations.
4. Felled trees were measured at 25 active cutting operations to provide utilization factors for product and species groups and to supplement the standing tree-volume study.
5. Estimates of growth, removals, and mortality were determined from the remeasurement of 1,545 permanent sample plots which were established in the third survey.

6. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary sample plots were added and measured to describe the forest conditions within the ownership class.
7. All field data were sent to Asheville for editing and were punched into cards and stored on magnetic tape for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of commercial forest land - - - - -	0.92
Per billion cubic feet of growing stock - - - - -	5.40
Per billion cubic feet of net annual growth - - - - -	1.18
Per billion cubic feet of annual removals - - - - -	2.50

*SAMPLING ERRORS FOR COUNTY AND UNIT TOTALS,¹ IN TERMS OF
ONE STANDARD ERROR?*

COUNTY	COMMERCIAL FOREST AREA	CUBIC-FOOT VOLUME OF GROWING STOCK		
		INVENTORY	GROWTH	REMOVALS
- - - - - <i>SAMPLING ERROR²</i> - - - - -				
BLADEN	1.04	8.57	9.40	19.59
BRUNSWICK	1.22	10.04	10.64	23.36
COLUMBUS	1.26	9.08	7.95	17.69
CUMBERLAND	1.82	10.95	12.37	29.68
DUPLIN	1.41	8.05	6.85	23.58
GREENE	3.15	15.32	18.15	33.93
HARNETT	2.00	10.85	12.08	33.43
HOKE	3.71	12.95	12.48	26.18
JOHNSTON	1.89	8.59	7.97	24.73
JONES	1.33	11.92	13.40	20.92
LEE	2.38	12.79	12.86	31.18
LENOIR	2.82	13.55	11.22	35.53
MOORE	1.02	7.88	7.59	23.44
NEW HANOVER	8.21	28.56	28.29	58.82
ON SLOW	1.44	9.99	12.02	26.68
PENDER	0.97	8.38	7.61	20.53
RICHMOND	2.44	12.88	13.25	24.52
ROBESON	1.63	8.60	8.12	28.13
SAMPSON	1.46	8.65	9.40	19.50
SCOTLAND	3.35	17.70	18.40	39.75
WAYNE	3.14	12.62	12.69	28.86
UNIT TOTAL	0.40	2.34	2.37	5.69

¹ SAMPLING ERROR OF BREAKDOWNS OF COUNTY AND UNIT TOTALS
MAY BE COMPUTED WITH THE FOLLOWING FORMULA:

$$E = \frac{(SE) \sqrt{(\text{SPECIFIED VOLUME OR AREA})}}{\sqrt{(\text{VOLUME OR AREA TOTAL IN QUESTION})}}$$

WHERE: E - SAMPLING ERROR OF THE VOLUME OR AREA TOTAL IN
QUESTION.

SE - SPECIFIED SAMPLING ERROR IN TABLE.

² BY RANDOM-SAMPLING FORMULA (IN PERCENT).

DEFINITIONS OF TERMS

Acceptable trees.--Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Basal area.--The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Cropland.--Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.--Growing-stock trees of commercial species having no serious defects in quality limiting present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.--A classification of trees based on diameter outside bark, measured at breast height ($4\frac{1}{2}$ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h., inclusive.

Farm.--Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.--A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.--Lands owned by farm operators.

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.--Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.--Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.--Forests in which upland oaks or hickory, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.--Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.--Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.--Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.--Soft-textured hardwoods such as boxelder, red and silver maple, buckeye, hackberry, loblolly-bay, silverbell (in mountains), butternut, sweetgum, yellow-poplar, cucumbertree, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.--Hard-textured hardwoods such as Florida and sugar maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, all commercial oaks, and black locust.

Idle farmland.--Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.--Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.--All roundwood products except fuelwood.

Land area.--The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Logging residues.--The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.--Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands - corporate.--Lands owned by private corporations other than forest industry.

Miscellaneous private lands - individual.--Privately owned lands other than forest-industry, farmer-owned, or corporate lands.

Mortality.--Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.--Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.--The increase in volume for a specific year.

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.--(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.--Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.--Land that has never supported forests and lands formerly forested where timber management is precluded by development for other uses.

Nonstocked land.--Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.--Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.--Publicly owned lands other than National Forests.

Overstocked areas.--Areas where growth of trees is significantly reduced by excessive numbers of trees.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Rangeland.--Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.--Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.--(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.--Live trees 1.0 to 5.0 inches in diameter at breast height.

Saw log.--A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.--The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.--Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.--Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.--Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.--Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.--Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.--Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.--Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.--Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.--Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.--Yellow pine species which include loblolly, longleaf, slash, shortleaf, pitch, Virginia, Table-Mountain, sand, and spruce pine.

Other softwoods.--White pine, hemlock, cypress, eastern redcedar, white-cedar, spruce, and fir.

Stand-size class.--A classification of forest land based on the size class of growing-stock trees on the area.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.--Lands owned by State, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.--The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See page 12.)

Timber removals.--The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.--That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.--Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

STOCKING STANDARD

D.B.H. CLASS	MINIMUM NUMBER OF TREES PER ACRE FOR FULL STOCKING	MINIMUM BASAL AREA PER ACRE FOR FULL STOCKING	PERCENT STOCKING ASSIGNED EACH TALLY TREE ¹
SEEDLINGS	600	--	5.0
2	560	--	5.4
4	460	--	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

¹ TREES LESS THAN 5.0 INCHES D.B.H. WERE TALLIED ON A 10-POINT CLUSTER OF CIRCULAR, 1/300-ACRE PLOTS AT EACH SAMPLE LOCATION. TREES 5.0 INCHES D.B.H. AND LARGER WERE TALLIED ON A 10-POINT CLUSTER OF VARIABLE PLOTS USING A BASAL AREA FACTOR OF 37.5 AT EACH SAMPLE LOCATION.

OVERSTOCKED--OVER 130 PERCENT
FULLY STOCKED--100-130 PERCENT
MEDIUM STOCKED--60-99 PERCENT
POORLY STOCKED--16.7-59 PERCENT
NONSTOCKED--LESS THAN 16.7 PERCENT

CUBIC FEET OF WOOD PER AVERAGE CORD (EXCLUDING BARK)

D.B.H. CLASS	ALL SPECIES	PINE	OTHER SOFTWOOD	HARDWOOD
6	60.6	61.0	68.2	60.0
8	68.4	68.1	76.0	68.4
10	73.4	73.1	81.4	73.4
12	76.8	76.7	85.2	76.4
14	79.1	79.4	88.2	78.4
16	80.9	81.6	90.4	79.8
18	82.2	83.3	92.3	80.8
20	83.2	84.8	93.8	81.5
22	83.8	86.0	95.1	82.1
24+	85.5	87.8	97.7	83.1
AVERAGE	74.0	73.9	84.9	73.5

COUNTY TABLES

THE COUNTY TABLES ARE INTENDED FOR USE IN COMPILING FOREST RESOURCE ESTIMATES FOR GROUPS OF COUNTIES. BECAUSE THE SAMPLING PROCEDURE USED BY THE FOREST SURVEY WAS INTENDED PRIMARILY TO FURNISH INVENTORY DATA FOR THE SURVEY UNIT AS A WHOLE, INDIVIDUAL COUNTY ESTIMATES HAVE LIMITED AND VARIABLE ACCURACY. AS COUNTY TOTALS ARE BROKEN DOWN BY VARIOUS SUBDIVISIONS, THE POSSIBILITY OF ERROR INCREASES AND IS GREATEST FOR THE SMALLEST ITEMS. THE ORDER OF THIS INCREASE CAN BE COMPUTED WITH THE FORMULA ON PAGE 5.

TABLE 1. --AREA, BY LAND CLASS AND COUNTY, 1973

COUNTY	ALL LAND ¹	FOREST LAND			NONFOREST LAND ²
		TOTAL	COMMERCIAL FOREST	UNPRODUCTIVE FOREST	
				ACRES	
BLADEN	565,815	435,530	433,598	--	130,285
BRUNSWICK	548,383	430,862	430,862	--	117,521
COLUMBUS	606,448	417,463	417,463	--	188,985
CUMBERLAND	418,917	238,369	238,213	--	180,548
DUPLIN	521,600	311,412	311,412	--	210,188
GREENE	170,880	77,178	77,178	--	93,702
HARNETT	385,778	214,487	212,109	--	171,291
HOKE	249,531	159,462	159,462	--	90,069
JOHNSTON	509,677	263,120	263,120	--	246,557
JONES	304,420	231,867	231,867	--	72,553
LEE	163,840	111,918	111,918	--	51,922
LENOIR	256,000	122,914	122,914	--	133,086
MOORE	450,861	342,185	341,762	--	108,676
NEW HANOVER	130,538	60,549	60,312	--	69,989
ONslow	494,453	377,076	377,046	--	117,377
PENDER	558,376	450,817	450,785	--	107,559
RICHMOND	303,673	219,309	219,309	--	84,364
ROBESON	607,765	297,421	297,421	--	310,344
SAMPSON	604,800	358,571	358,571	--	246,229
SCOTLAND	204,656	124,464	124,464	--	80,192
WAYNE	355,400	152,661	152,111	--	202,739
TOTAL	8,411,811	5,397,635	5,391,897	--	3,014,176

¹ FROM U. S. BUREAU OF THE CENSUS, LAND AND WATER AREA OF THE UNITED STATES, 1970.

² INCLUDES 70,754 ACRES OF WATER ACCORDING TO SURVEY STANDARDS OF AREA CLASSIFICATION BUT DEFINED BY THE BUREAU OF THE CENSUS AS LAND.

TABLE 2. -- AREA OF COMMERCIAL FOREST LAND, BY OWNERSHIP CLASS AND COUNTY, 1973

COUNTY	ALL OWNERSHIPS	OWNERSHIP CLASS						FARMER	MISCELLANEOUS PRIVATE		
		NATIONAL FOREST	MISCELLANEOUS FEDERAL	STATE	COUNTY AND MUNICIPAL	FOREST INDUSTRY ¹	ACRES		CORPORATE	INDIVIDUAL	
BLADEN	433,598	--	39	35,777	--	52,797	--	144,301	38,487	162,197	
BRUNSWICK	430,862	--	8,567	300	--	221,301	--	113,466	27,835	59,393	
COLUMBUS	417,463	--	--	15	22	155,233	--	162,314	21,878	78,001	
CUMBERLAND	238,213	--	34,110	298	1,758	9,023	--	104,071	6,309	82,644	
DUPLIN	311,412	--	--	7,585	213	32,272	--	175,234	7,737	88,371	
GREENE	77,178	--	--	--	--	327	--	52,399	3,493	20,959	
HARNETT	212,109	--	12	--	--	15,038	--	137,517	6,415	53,127	
Hoke	159,462	--	84,189	1,537	--	2,180	--	41,085	339	30,132	
JOHNSTON	263,120	--	--	390	217	2,870	--	192,649	440	66,554	
JONES	231,867	37,314	550	27,000	--	53,383	--	79,662	1,369	32,589	
LEE	111,918	--	--	--	--	6,794	--	77,230	2,096	25,798	
LENOIR	122,914	--	--	468	300	10,204	--	90,014	201	21,727	
MOORE	341,762	--	--	4,542	70	14,254	--	189,461	13,863	119,572	
NEW HANOVER	60,312	--	--	590	398	9,631	--	3,823	22,934	22,936	
ONslow	377,046	--	69,000	51,000	--	113,726	--	52,857	5,890	84,573	
PENDER	450,785	--	--	63,018	--	127,937	--	106,960	11,679	141,191	
RICHMOND	219,309	--	2,417	28,135	403	27,425	--	89,234	8,753	62,942	
ROBEson	297,421	--	--	15	7	11,224	--	168,121	28,007	90,047	
SAMPSON	358,571	--	--	40	26	36,436	--	217,928	7,381	96,760	
SCOTLAND	124,464	--	3,775	18,381	3,810	5,249	--	54,664	10,469	28,116	
WAYNE	152,111	--	525	829	242	2,500	--	120,569	5,522	21,324	
TOTAL	5,391,897	37,314	203,184	239,920	7,466	909,804	--	2,373,559	231,097	1,389,553	

¹ NOT INCLUDING 122,261 ACRES OF FARMER-OWNED AND MISCELLANEOUS PRIVATE LANDS LEASED TO FOREST INDUSTRY.

¹ NOT INCLUDING 122,261 ACRES OF FARMER-OWNED AND MISCELLANEOUS PRIVATE LANDS LEASED TO FOREST INDUSTRY.

TABLE 3. --AREA OF COMMERCIAL FOREST LAND, BY FOREST-TYPE GROUP AND COUNTY, 1973

COUNTY	ALL TYPE GROUPS	FOREST-TYPE GROUP								
		WHITE PINE-HEMLOCK	SPRUCE-FIR	LONGLEAF-SLASH	LOBLOLLY-SHORTLEAF	OAK-PINE	OAK-HICKORY	OAK-GUM-CYPRESS	ELM-ASH-COTTONWOOD	MAPLE-BEECH-BIRCH
					ACRES					
BLADEN	433,598	--	--	62,783	173,392	59,476	27,531	110,416	--	--
BRUNSWICK	430,862	--	--	66,394	255,124	18,501	20,366	66,525	3,952	--
COLUMBUS	417,463	--	--	7,549	194,040	52,672	33,183	130,019	--	--
CUMBERLAND	238,213	--	--	31,004	101,737	34,370	28,249	42,853	--	--
DUPLIN	311,412	--	--	10,292	112,880	50,972	49,652	87,616	--	--
GREENE	77,178	--	--	--	14,299	17,466	17,466	27,947	--	--
HARNETT	212,109	--	--	15,038	59,380	34,379	93,923	9,377	12	--
Hoke	159,462	--	--	47,835	32,608	28,554	26,338	24,127	--	--
JOHNSTON	263,120	--	--	7,005	77,477	56,041	59,546	31,526	31,525	--
JONES	231,867	--	--	9,131	118,876	22,884	30,857	35,635	14,484	--
LEE	111,918	--	--	--	22,802	22,066	57,430	9,620	--	--
LENOIR	122,914	--	--	3,104	45,317	24,832	18,623	24,831	6,207	--
MOORE	341,762	--	--	57,725	82,944	51,057	127,312	15,815	6,909	--
NEW HANOVER	60,312	--	--	15,667	17,888	7,645	7,645	7,645	3,822	--
ONSLow	377,045	--	--	49,709	209,380	41,005	7,048	54,232	15,672	--
PENDER	450,785	--	--	42,094	262,859	31,430	17,170	80,721	16,511	--
RICHMOND	219,309	--	--	46,572	73,075	20,418	62,542	16,702	--	--
ROBESON	297,421	--	--	3,431	90,628	30,879	37,741	134,742	--	--
SAMPSON	358,571	--	--	16,568	123,346	73,727	59,440	85,490	--	--
SCOTLAND	124,464	--	--	25,140	56,808	12,148	24,294	6,074	--	--
WAYNE	152,111	--	--	--	75,468	11,793	45,748	19,102	--	--
TOTAL	5,391,897	--	--	517,041	2,200,328	702,315	852,104	1,021,015	99,094	--

TABLE 4. --AREA OF COMMERCIAL FOREST LAND, BY STAND-SIZE CLASS
AND COUNTY, 1973

COUNTY	ALL STANDS	STAND-SIZE CLASS			NONSTOCKED AREAS
		SAWTIMBER	POLETIMBER	SAPLING- SEEDLING	
		-- -- ACRES -- --			
BLADEN	433,598	196,153	82,487	139,797	15,161
BRUNSWICK	430,862	95,839	133,472	162,249	39,302
COLUMBUS	417,463	142,171	108,575	152,408	14,309
CUMBERLAND	238,213	99,043	55,123	64,981	19,066
DUPLIN	311,412	145,963	82,268	83,181	--
GREENE	77,178	24,779	34,933	17,466	--
HARNETT	212,109	81,266	53,300	61,918	15,625
Hoke	159,462	73,500	32,158	38,422	15,382
JOHNSTON	263,120	146,481	56,654	56,483	3,502
JONES	231,867	86,449	65,314	73,517	6,587
LEE	111,918	31,688	57,313	22,917	--
LENOIR	122,914	63,144	31,336	22,226	6,208
MOORE	341,762	160,742	94,883	68,866	17,271
NEW HANOVER	60,312	22,935	15,666	17,889	3,822
ONSLOW	377,046	124,343	103,831	132,122	16,750
PENDER	450,785	134,637	142,028	151,223	22,897
RICHMOND	219,309	96,936	58,123	38,625	25,625
ROBESON	297,421	196,523	28,847	58,327	13,724
SAMPSON	358,571	152,319	92,329	108,073	5,850
SCOTLAND	124,464	36,549	25,612	47,119	15,184
WAYNE	152,111	80,906	43,720	19,345	8,140
TOTAL	5,391,897	2,192,366	1,397,972	1,537,154	264,405

TABLE 5. --AREA OF COMMERCIAL FOREST LAND, BY SITE CLASS AND COUNTY, 1973

COUNTY	ALL CLASSES	SITE CLASS				
		1	2	3	4	5
		- - - - -	- - - - -	- - - - -	- - - - -	- - - - -
		- - - - -	ACRES	- - - - -	- - - - -	- - - - -
BLADEN	433,598	--	7,400	36,451	244,203	145,544
BRUNSWICK	430,862	--	--	27,228	211,217	192,417
COLUMBUS	417,463	--	--	153,328	227,401	36,734
CUMBERLAND	238,213	--	3,061	40,493	116,036	78,623
DUPLIN	311,412	--	--	57,445	230,736	23,231
GREENE	77,178	--	6,986	24,780	41,919	3,493
HARNETT	212,109	--	--	37,519	103,299	71,291
Hoke	159,462	--	--	10,956	64,460	84,046
JOHNSTON	263,120	--	3,502	115,568	123,034	21,016
JONES	231,867	--	5,510	40,913	133,206	52,238
LEE	111,918	--	7,355	18,390	75,141	11,032
LENOIR	122,914	--	--	54,035	56,166	12,713
MOORE	341,762	--	--	43,917	200,342	97,503
NEW HANOVER	60,312	--	--	--	22,937	37,375
ONSLOW	377,046	--	--	8,624	194,562	173,860
PENDER	450,785	--	--	3,566	264,525	182,694
RICHMOND	219,309	--	3,718	27,793	124,867	62,931
ROBESON	297,421	--	--	51,465	232,232	113,724
SAMPSON	358,571	--	--	52,288	278,995	127,288
SCOTLAND	124,464	--	3,037	15,185	57,632	48,610
WAYNE	152,111	--	3,654	83,607	44,676	20,174
TOTAL	5,391,897	--	44,223	903,551	3,047,586	1,396,537

TABLE 7.---VOLUME OF SAWTIMBER AND GROWING STOCK ON COMMERCIAL FOREST LAND, BY SPECIES GROUP AND COUNTY, 1973

COUNTY	SAWTIMBER				GROWING STOCK					
	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD

¹ FACTORS FOR CONVERTING TO CORDS ARE SHOWN ON PAGE 12.

TABLE 8.--NET ANNUAL GROWTH OF SAWTIMBER AND GROWING STOCK ON COMMERCIAL FOREST LAND, BY SPECIES GROUP AND COUNTY, 1972

COUNTY	SAWTIMBER				GROWING STOCK					
	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD
-- THOUSAND BOARD FEET --										
BLADEN	74,167	55,119	1,286	11,222	6,540	19,340	12,585	211	3,821	2,723
BRUNSWICK	55,311	42,693	3,521	16,537	2,460	17,008	12,526	384	2,651	1,447
COLUMBUS	66,472	38,948	3,357	13,869	10,298	21,224	13,312	525	4,856	2,531
CUMBERLAND	43,870	35,603	563	4,943	2,761	12,355	8,283	140	2,023	1,909
DUPLIN	56,503	33,450	214	14,865	7,974	13,899	7,914	73	3,947	1,965
GREENE	12,305	5,935	961	3,706	1,703	3,253	1,696	94	841	1,822
HARNETT	41,882	28,160	57	6,408	7,257	10,088	6,024	10	1,768	2,286
Hoke	24,169	19,527	122	3,988	532	5,105	3,441	36	1,149	479
JOHNSTON	79,888	48,772	--	18,795	12,321	16,781	9,205	--	3,985	3,581
JONES	31,170	20,392	1,149	6,088	3,541	8,125	5,313	196	1,508	1,108
LEE	27,711	15,912	--	5,489	6,310	7,270	3,025	145	2,379	1,721
LENOIR	25,447	12,947	2,738	6,021	3,741	5,949	2,864	478	1,489	1,118
MOORE	70,791	49,886	1,824	7,114	11,967	19,658	11,904	404	3,109	4,214
NEW HANOVER	6,742	5,875	--	459	408	1,653	1,271	--	169	213
ONSLow	39,266	29,838	849	5,484	3,095	15,745	12,419	154	2,044	1,128
PENDER	56,377	39,142	4,607	8,324	4,304	16,726	12,091	680	2,269	1,686
RICHMOND	38,293	27,637	160	8,875	1,621	9,645	6,435	6	2,591	613
ROBEson	55,659	24,641	3,837	21,088	6,093	14,819	6,081	473	5,871	2,394
SAMPSON	60,452	42,070	1,397	10,757	6,228	15,802	9,824	250	3,083	2,645
SCOTLAND	18,053	15,212	538	1,615	688	4,078	2,773	307	664	2,334
WAYNE	33,733	25,1691	--	5,451	2,591	7,824	5,087	--	1,012	1,725
TOTAL	918,261	617,450	27,280	171,098	102,433	246,347	154,073	4,566	51,239	36,469

TABLE 9. ---ANNUAL REMOVALS OF SAWTIMBER AND GROWING STOCK ON COMMERCIAL FOREST LAND, BY SPECIES GROUP AND COUNTY, 1972

COUNTY	SAWTIMBER				GROWING STOCK			
	ALL SPECIES	PINE	OTHER SOFTWOOD	THOUSAND BOARD FEET	ALL SPECIES	PINE	OTHER SOFTWOOD	THOUSAND CUBIC FEET
BLADEN	54,193	33,901	996	11,314	14,822	9,029	194	3,324
BRUNSWICK	38,193	28,471	1,135	3,939	12,310	8,531	268	2,086
COLUMBUS	51,639	40,000	421	8,003	15,467	11,160	82	2,644
CUMBERLAND	24,937	17,945	--	4,078	6,560	4,633	--	1,021
DUPLIN	34,364	24,089	--	9,588	9,627	6,477	--	2,713
GREENE	26,195	19,903	--	4,583	6,236	4,099	--	2,138
HARNETT	12,155	9,939	--	3,598	4,173	1,963	--	1,143
HOKE	31,073	23,330	--	7,648	7,129	5,061	--	1,973
JOHNSTON	61,933	45,983	--	10,797	13,743	9,634	--	2,763
JONES	35,022	21,160	600	7,718	10,262	7,230	103	1,729
LEE	22,461	16,013	--	2,200	6,028	3,604	--	1,781
LENOIR	29,796	25,057	--	2,476	5,871	4,710	--	486
MOORE	28,927	17,367	--	5,732	11,488	6,765	--	1,802
NEW HANOVER	2,306	1,841	--	455	651	568	--	83
ONSLOW	40,016	34,412	--	4,474	9,339	7,556	--	1,167
PENDER	51,667	36,307	4,029	2,888	14,392	10,649	966	1,975
RICHMOND	26,015	20,843	--	4,102	7,717	6,162	--	1,118
ROBESON	54,004	41,429	839	7,493	11,769	8,410	150	2,032
SAMPSON	45,802	35,440	--	8,767	12,501	9,303	--	2,482
SCOTLAND	11,260	10,904	--	356	3,793	3,548	--	189
WAYNE	36,890	34,330	--	1,608	8,486	7,770	--	372
TOTAL	718,848	534,664	8,020	111,717	192,364	136,862	1,773	32,201
								21,528

TABLE 10. --AREA OF COMMERCIAL FOREST LAND, BY FOREST TYPE AND OWNERSHIP CLASS, 1973

FOREST TYPE	ALL OWNERSHIPS	OWNERSHIP CLASS				
		NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	FARMER	MISC. PRIVATE
- - - - - ACRES - - - - -						
SOFTWOOD TYPES:						
WHITE PINE-HEMLOCK	--	--	--	--	--	--
SPRUCE-FIR	--	--	--	--	--	--
LONGLEAF PINE	428,586	1,889	139,769	50,540	74,673	161,715
SLASH PINE	88,455	--	--	59,701	3,454	25,300
LOBLLOLLY PINE	1,484,080	7,556	61,682	330,660	639,026	445,156
SHORTLEAF PINE	30,471	--	6,489	2,985	10,635	10,362
VIRGINIA PINE	7,436	--	--	--	3,718	3,718
SAND PINE	--	--	--	--	--	--
EASTERN REDCEDAR	10,346	--	6,822	--	--	3,524
POND PINE	667,995	16,534	124,206	205,712	131,812	189,731
SPRUCE PINE	--	--	--	--	--	--
PITCH PINE	--	--	--	--	--	--
TABLE-MOUNTAIN PINE	--	--	--	--	--	--
TOTAL	2,717,369	25,979	338,968	649,598	863,318	839,506
HARDWOOD TYPES:						
OAK-PINE	702,315	3,779	41,993	47,370	400,985	208,188
OAK-HICKORY	688,710	1,889	9,021	37,178	466,620	174,002
CHESTNUT OAK	--	--	--	--	--	--
SOUTHERN SCRUB OAK	163,394	--	27,277	2,030	78,214	55,873
OAK-GUM-CYPRESS	1,021,015	5,667	24,675	163,862	508,557	318,254
ELM-ASH-COTTONWOOD	99,094	--	8,636	9,766	55,865	24,827
MAPLE-BEECH-BIRCH	--	--	--	--	--	--
TOTAL	2,674,528	11,335	111,602	260,206	1,510,241	781,144
ALL TYPES	5,391,897	37,314	450,570	909,804	2,373,559	1,620,650

TABLE 11. --AREA OF COMMERCIAL FOREST LAND, BY OWNERSHIP AND STOCKING CLASSES OF GROWING-STOCK TREES, 1973

OWNERSHIP CLASSES	ALL CLASSES	STOCKING PERCENTAGE ¹					
		OVER 30	30	100-130	60-99	16.7-59	LESS THAN 16.7
- - - - - ACRES - - - - -							
NATIONAL FOREST	37,314			13,223	13,224	10,867	--
OTHER PUBLIC	450,570	1,		67,287	120,399	227,586	33,710
FOREST INDUSTRY	909,804	11,		290,984	373,454	179,601	53,939
FARMER	2,373,559	16,966		494,369	1,168,937	607,534	85,753
MISC. PRIVATE	1,620,650	20,286		382,700	680,526	446,135	91,003
ALL OWNERSHIPS	5,391,897	50,666		1,248,563	2,356,540	1,471,723	264,405

¹ SEE STOCKING STANDARDS ON PAGE 12.

TABLE 12. --VOLUME OF TIMBER ON COMMERCIAL FOREST LAND, BY CLASS AND SPECIES GROUP, 1973

CLASS OF TIMBER	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD
- - - - - THOUSAND CUBIC FEET - - - - -					
SAWTIMBER TREES:					
SAW-LOG PORTION	3,124,752	1,844,939	126,042	753,741	400,030
UPPER-STEM PORTION	501,869	216,445	14,787	176,803	93,834
TOTAL	3,626,621	2,061,384	140,829	930,544	493,864
POLETIMBER TREES	1,691,548	744,793	32,862	576,523	337,370
ALL GROWING-STOCK TREES	5,318,169	2,806,177	173,691	1,507,067	831,234
ROUGH TREES:					
SAWTIMBER-SIZE TREES	147,680	24,274	3,339	66,833	53,234
POLETIMBER-SIZE TREES	381,368	34,039	2,212	177,736	167,381
TOTAL	529,048	58,313	5,551	244,569	220,615
ROTTEN TREES:					
SAWTIMBER-SIZE TREES	137,618	4,292	6,871	94,247	32,208
POLETIMBER-SIZE TREES	28,510	108	305	20,457	7,640
TOTAL	166,128	4,400	7,176	114,704	39,848
SALVABLE DEAD TREES:					
SAWTIMBER-SIZE TREES	188	184	4	--	--
POLETIMBER-SIZE TREES	206	204	2	--	--
TOTAL	394	388	6	--	--
TOTAL, ALL TIMBER	6,013,739	2,869,278	186,424	1,866,340	1,091,697

TABLE 13. --NUMBER OF GROWING-STOCK TREES ON COMMERCIAL FOREST LAND, BY SPECIES AND DIAMETER CLASS, 1973

SPECIES	ALL CLASSES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)										29.0 AND LARGER
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9		
THOUSAND TREES												
SOFTWOOD:												
LONGLEAF PINE	43,198	14,448	11,722	8,134	5,218	2,399	817	346	71	43	--	--
SLASH PINE	5,935	4,922	3,651	2,521	1,851	1,052	510	230	66	32	--	--
SHORTLEAF PINE	12,637	5,897	3,619	1,862	884	236	117	16	6	--	--	--
LOBLOLLY PINE	180,789	76,915	40,098	24,998	17,634	10,767	5,915	2,728	998	712	24	24
POND PINE	63,641	26,711	17,265	10,769	5,075	2,509	819	285	194	14	--	--
VIRGINIA PINE	63,633	397	132	46	48	--	10	--	--	--	--	--
PITCH PINE	--	--	--	--	--	--	--	--	--	--	--	--
TABLE-MOUNTAIN PINE	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE PINE	--	--	--	--	--	--	--	--	--	--	--	--
SAND PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN WHITE PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN HEMLOCK	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE AND FIR	--	--	--	--	--	--	--	--	--	--	--	--
BALDCYPRESS	5,555	1,222	947	1,401	800	500	241	230	107	220	12	12
POND CYPRESS	3,544	1,012	757	701	582	160	142	36	47	43	4	4
CEDARS	8,822	1,623	698	319	188	141	29	25	7	--	--	--
TOTAL SOFTWOODS	318,912	133,097	76,189	48,342	30,224	16,792	8,100	3,666	1,430	1,032	40	40
HARDWOOD:												
SELECT WHITE OAKS	17,169	6,802	3,857	2,611	1,626	908	761	223	179	177	25	25
SELECT RED OAKS	2,148	936	476	257	192	121	64	58	12	32	--	--
CHESTNUT OAK	7,198	53	39	48	17	24	253	79	55	52	10	10
OTHER WHITE OAKS	7,874	2,722	2,431	1,391	609	272	253	686	243	328	49	49
OTHER RED OAKS	41,727	18,940	10,042	4,893	3,479	2,126	941	1,700	44	23	--	--
HICKORY	6,042	2,461	1,237	858	620	504	125	--	--	--	--	--
YELLOW BIRCH	--	--	--	--	--	--	--	--	--	--	--	--
HARD MAPLE	38	--	38	--	--	--	--	--	--	--	--	--
SOFT MAPLE	21,063	8,274	5,436	3,281	1,821	1,091	512	--	179	137	--	--
BEECH	--	--	--	--	--	--	--	--	--	--	--	--
SWEETGUM	44,713	18,917	11,670	6,133	3,359	2,114	1,335	681	25	235	4	4
TUPELO AND BLACKGUM	40,600	10,848	10,162	6,913	5,066	3,809	1,863	1,048	469	410	12	12
ASH	6,386	2,344	1,354	1,099	595	453	313	124	5	47	--	--
COTTONWOOD	5	--	--	--	--	--	--	--	--	--	--	--
BASSWOOD	115	--	81	--	34	--	--	--	--	--	--	--
YELLOW-POPLAR	16,155	5,031	3,758	2,438	1,709	1,363	859	516	248	228	5	5
BAY AND MAGNOLIA	647	179	240	83	79	51	--	15	--	--	--	--
BLACK CHERRY	420	266	88	29	37	12	--	--	--	--	--	--
BLACK WALNUT	12	--	--	--	--	--	--	--	--	--	--	--
SYCAMORE	236	--	120	47	34	--	--	7	13	15	--	--
BLACK LOCUST	--	--	--	--	--	--	--	--	--	--	--	--
ELM	3,339	853	999	576	339	339	151	40	23	19	--	--
OTHER EASTERN HARDWOODS	6,572	2,837	1,826	991	421	205	144	56	72	20	--	--
TOTAL HARDWOODS	215,459	81,463	53,854	31,648	20,037	13,392	7,321	4,042	1,869	1,728	105	105
ALL SPECIES	534,371	214,560	130,043	79,990	50,261	30,184	15,421	7,708	3,299	2,760	145	145

TABLE 14.--VOLUME OF ALL LIVE TREES ON COMMERCIAL FOREST LAND, BY SPECIES AND DIAMETER CLASS, 1973

SPECIES	ALL CLASSES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)										29.0 AND LARGER
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9		
THOUSAND CUBIC FEET												
SOFTWOOD:												
LONGLEAF PINE	398,333	37,353	74,049	90,720	90,104	56,905	26,819	14,626	4,056	3,701	--	--
SLASH PINE	12,279	8,118	3,591	322	--	--	248	--	--	--	--	--
SHORTLEAF PINE	92,438	16,571	22,976	24,511	16,360	6,200	4,525	843	452	--	--	--
LOBLOLLY PINE	1,869,477	195,798	244,399	298,393	332,148	294,791	227,820	137,933	67,905	66,133	4,157	4,157
POND PINE	492,576	68,324	105,561	124,448	83,821	59,066	26,988	11,623	11,422	1,323	--	--
VIRGINIA PINE	3,787	1,153	1,047	570	771	--	246	--	--	--	--	--
PITCH PINE	--	--	--	--	--	--	--	--	--	--	--	--
TABLE-MOUNTAIN PINE	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE PINE	--	--	--	--	--	--	--	--	--	--	--	--
SAND PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN WHITE PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN HEMLOCK	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE AND FIR	--	--	--	--	--	--	--	--	--	--	--	--
BALDOCYPRESS	116,245	6,008	8,942	20,350	14,181	15,047	8,495	11,032	6,520	21,547	4,123	4,123
POND CYPRESS	47,773	3,738	5,938	9,672	9,672	4,482	4,850	1,600	2,673	2,934	2,214	2,214
CEDARS	22,400	5,358	5,395	3,699	2,830	2,713	1,163	898	344	--	--	--
TOTAL SOFTWOODS	3,055,308	342,421	471,898	572,685	549,887	439,204	301,154	178,555	93,372	95,638	10,494	10,494
HARDWOOD:												
SELECT WHITE OAKS	199,841	21,164	23,535	31,057	30,665	24,272	26,416	10,272	11,013	15,473	4,974	4,974
SELECT RED OAKS	27,233	3,711	4,238	3,478	3,617	3,197	2,423	2,681	761	3,127	--	--
CHESTNUT OAK	2,944	168	15,585	14,852	11,345	6,782	8,627	3,818	213	5,886	2,544	2,544
OTHER WHITE OAKS	81,891	9,475	15,585	14,852	11,345	6,782	8,627	3,818	3,177	5,886	2,544	2,544
OTHER RED OAKS	444,613	65,019	66,997	59,274	63,206	56,348	37,098	34,435	14,310	34,841	13,085	13,085
HICKORY	75,464	8,099	8,577	10,463	11,572	14,101	5,801	10,032	4,171	2,648	--	--
YELLOW B. CH.	--	--	--	--	--	--	--	--	--	--	--	--
HARD MAPLE	462	--	268	--	194	--	--	--	--	--	--	--
SOFT MAPLE	331,285	52,565	56,778	60,081	46,749	37,851	23,766	20,338	11,950	19,067	2,143	2,143
BEECH	--	--	--	--	--	--	--	--	--	--	--	--
SWEETGUM	497,140	56,293	83,010	80,534	70,888	65,342	57,629	38,067	17,523	26,425	1,429	1,429
TUPELO AND BLACKGUM	682,263	59,476	94,758	101,134	120,210	136,813	77,423	52,574	31,426	48,209	8,368	8,368
ASH	101,840	12,617	14,554	17,450	13,577	13,974	13,104	7,665	4,385	3,896	218	218
COTTONWOOD	368	--	--	--	--	--	--	--	358	--	--	--
BASSWOOD	1,310	--	523	--	539	--	--	--	--	--	--	--
YELLOW POPLAR	245,493	16,620	26,309	31,586	34,371	38,238	32,220	24,958	15,740	23,285	2,166	2,166
BAY AND MAGNOLIA	15,693	4,936	3,505	1,400	2,759	2,405	40	591	57	--	--	--
BLACK OAK	6,570	2,605	2,045	648	1,020	330	--	--	--	--	--	--
BLACK YEW	6,330	--	--	--	--	--	--	--	--	--	--	--
BLACK WALNUT	7,551	--	983	602	938	371	1,057	608	674	1,936	382	382
BLACK LOCUST	--	--	--	--	--	--	--	--	--	--	--	--
FLM	49,991	3,911	8,009	9,199	7,179	9,114	6,232	2,535	1,628	2,184	--	--
OTHER EASTERN HARDWOODS	185,765	56,557	49,398	31,998	18,271	10,040	7,962	4,806	4,701	2,032	--	--
TOTAL HARDWOODS	2,958,037	373,216	459,426	454,465	419,343	389,788	299,823	213,652	122,487	190,531	35,306	35,306
ALL SPECIES	6,013,345	715,637	931,324	1,027,150	969,230	828,992	600,977	392,207	215,859	286,169	45,800	45,800

TABLE 15. -- VOLUME OF GROWING STOCK ON COMMERCIAL FOREST LAND, BY SPECIES AND DIAMETER CLASS, 1973

SPECIES	ALL CLASSES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)										29.0 AND LARGER
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9		
THOUSAND CUBIC FEET												
SOFTWOOD:												
LONGLEAF PINE	394,638	36,708	73,853	90,459	88,902	56,905	25,400	14,626	3,423	3,362	--	--
SLASH PINE	12,165	8,004	3,591	322	--	--	248	--	--	--	--	--
SHORTLEAF PINE	91,909	16,440	22,790	24,299	16,360	6,200	4,525	843	452	--	--	--
LOBLOLLY PINE	1,842,587	187,332	236,526	295,676	329,897	293,178	226,311	137,636	66,663	65,301	4,157	--
POND PINE	461,091	60,780	96,569	111,935	82,874	57,930	26,839	11,623	11,218	1,323	--	--
VIRGINIA PINE	3,787	1,153	1,047	570	771	--	246	--	--	--	--	--
PITCH PINE	--	--	--	--	--	--	--	--	--	--	--	--
TABLE-MOUNTAIN PINE	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE PINE	--	--	--	--	--	--	--	--	--	--	--	--
SAND PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN WHITE PINE	--	--	--	--	--	--	--	--	--	--	--	--
EASTERN HEMLOCK	--	--	--	--	--	--	--	--	--	--	--	--
SPRUCE AND FIR	--	--	--	--	--	--	--	--	--	--	--	--
BALDOCYPRESS	107,508	4,844	8,849	20,350	11,570	14,887	8,495	11,032	6,331	19,352	1,798	--
POND CYPRESS	45,040	3,449	5,859	9,263	9,502	4,231	4,521	1,600	2,453	2,934	1,228	--
CEDARS	21,143	5,222	4,639	3,699	2,648	2,713	980	898	344	--	--	--
TOTAL SOFTWOODS	2,979,868	323,932	453,723	556,573	542,434	436,044	298,565	178,258	90,884	92,272	7,183	--
HARDWOOD:												
SELECT WHITE OAKS	185,241	18,670	22,635	27,690	28,450	22,685	25,946	9,603	10,440	14,904	4,218	--
SELECT RED OAKS	25,520	3,441	3,531	3,478	3,400	3,197	2,301	2,681	761	2,730	--	--
CHESTNUT OAK	2,391	168	189	471	243	561	--	272	213	274	--	--
OTHER WHITE OAKS	69,926	7,349	13,217	12,811	9,195	6,178	7,564	3,575	2,635	5,086	2,316	--
OTHER RED OAKS	378,980	51,348	56,659	49,702	55,763	50,709	31,870	31,121	13,365	28,575	9,668	--
HICKORY	60,718	6,127	6,615	8,411	10,222	12,189	4,463	7,750	2,803	2,138	--	--
YELLOW BIRCH	--	--	--	--	--	--	--	--	--	--	--	--
HARD MAPLE	268	--	268	--	--	--	--	--	--	--	--	--
SOFT MAPLE	206,539	25,753	35,457	37,186	30,674	26,101	16,556	13,918	9,519	11,375	--	--
BEECH	--	--	--	--	--	--	--	--	--	--	--	--
SWEETGUM	440,007	43,586	71,745	72,374	66,049	61,350	52,280	34,653	16,120	21,041	809	--
TUPELO AND BLACKGUM	550,218	34,106	68,785	84,966	90,487	97,287	65,985	47,006	25,282	33,543	2,771	--
ASH	75,125	6,754	8,619	12,962	10,341	12,562	11,431	6,497	3,462	3,497	--	--
COTTONWOOD	358	--	--	--	--	--	--	--	358	--	--	--
BASSWOOD	1,062	--	523	--	539	--	--	--	--	--	--	--
YELLOW-POPLAR	233,407	15,183	25,075	29,690	33,286	37,857	32,137	24,072	15,547	19,866	694	--
RAY AND MAGNOLIA	5,638	513	1,216	924	1,394	1,200	--	591	--	--	--	--
BLACK CHERRY	1,679	472	392	238	577	--	--	--	--	--	--	--
BLACK WALNUT	330	--	--	--	--	330	--	--	--	--	--	--
SYCAMORE	4,997	--	758	602	692	--	--	335	674	1,936	--	--
BLACK LOCUST	--	--	--	--	--	--	--	--	--	--	--	--
ELM	41,139	2,058	5,928	7,333	6,300	8,808	5,688	1,998	1,421	1,605	--	--
OTHER EASTERN HARDWOODS	53,558	6,153	10,726	11,036	6,769	4,811	5,142	2,896	4,701	1,324	--	--
TOTAL HARDWOODS	2,338,301	221,681	332,338	359,874	354,381	345,825	261,363	186,968	107,301	147,894	20,676	--
ALL SPECIES	5,318,169	545,613	786,061	916,447	896,815	781,869	559,928	365,226	198,185	240,166	27,859	--

TABLE 16. -- VOLUME OF SAWTIMBER ON COMMERCIAL FOREST LAND, BY SPECIES AND DIAMETER CLASS, 1973

SPECIES	ALL CLASSES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)									
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER		
-- THOUSAND BOARD FEET --											
SOFTWOOD:											
LONGLEAF PINE	1,383,537	366,172	428,627	304,165	151,775	88,841	21,478	22,479	--	--	
SLASH PINE	2,452	1,089	--	--	1,363	--	--	--	--	--	
SHORTLEAF PINE	223,984	87,985	72,612	30,919	24,804	4,878	2,786	--	--	--	
LOBLOLLY PINE	6,879,793	1,041,203	1,448,102	1,471,652	1,244,001	807,228	410,917	426,519	30,171	--	
POND PINE	913,828	249,710	248,250	203,689	105,975	49,318	50,554	6,332	--	--	
VIRGINIA PINE	6,373	2,006	3,182	--	1,185	--	--	--	--	--	
PITCH PINE	--	--	--	--	--	--	--	--	--	--	
TABLE-MOUNTAIN PINE	--	--	--	--	--	--	--	--	--	--	
SPRUCE PINE	--	--	--	--	--	--	--	--	--	--	
SAND PINE	--	--	--	--	--	--	--	--	--	--	
EASTERN WHITE PINE	--	--	--	--	--	--	--	--	--	--	
EASTERN HEMLOCK	--	--	--	--	--	--	--	--	--	--	
SPRUCE AND FIR	--	--	--	--	--	--	--	--	--	--	
BALDCYPRESS	420,017	60,243	42,823	63,839	39,937	56,588	33,703	111,537	11,347	--	
POND CYPRESS	154,849	29,708	37,170	18,711	22,464	8,338	13,393	16,619	8,246	--	
CEDARS	50,831	13,310	11,511	13,451	5,340	5,175	2,044	--	--	--	
TOTAL SOFTWOODS	10,035,464	1,851,426	2,292,277	2,106,426	1,596,844	1,020,366	534,875	583,486	49,764	--	
HARDWOOD:											
SELECT WHITE OAKS	506,468	--	93,416	88,240	112,889	44,839	53,682	84,678	28,724	--	
SELECT RED OAKS	66,156	--	10,821	12,543	10,405	12,967	3,711	15,709	--	--	
CHESTNUT OAK	6,346	--	716	2,056	--	1,203	1,023	1,348	--	--	
OTHER WHITE OAKS	171,308	--	32,547	26,161	35,262	18,102	14,018	29,357	15,861	--	
OTHER RED OAKS	999,922	--	200,721	210,063	144,641	155,337	69,993	159,822	59,345	--	
HICKORY	168,316	--	34,900	48,646	20,307	37,929	14,642	11,892	--	--	
YELLOW BIRCH	--	--	--	--	--	--	--	--	--	--	
HARD MAPLE	--	--	--	--	--	--	--	--	--	--	
SOFT MAPLE	419,430	--	94,488	95,768	67,176	60,833	44,242	56,923	--	--	
BEECH	--	--	--	--	--	--	--	--	--	--	
SWEETGUM	1,149,051	--	234,184	261,045	251,137	181,606	89,466	126,145	5,468	--	
TUPELO AND BLACKGUM	1,542,046	--	291,617	386,151	296,168	230,116	131,260	188,712	18,022	--	
ASH	195,099	--	33,333	48,272	48,412	30,232	16,841	18,009	--	--	
COTTONWOOD	2,046	--	--	--	--	--	2,046	--	--	--	
BASSWOOD	1,621	--	1,621	--	--	--	--	--	--	--	
YELLOW-POPLAR	760,901	--	116,229	158,479	153,474	124,378	85,711	118,058	4,572	--	
BAY AND MAGNOLIA	11,781	--	4,615	4,484	--	2,682	--	--	--	--	
BLACK CHERRY	1,972	--	1,972	--	--	--	--	--	--	--	
BLACK WALNUT	1,076	--	--	1,076	--	1,606	3,312	11,494	--	--	
SYCAMORE	18,384	--	--	--	--	--	--	--	--	--	
BLACK LOCUST	--	--	--	--	--	--	--	--	--	--	
ELM	103,458	--	21,794	33,799	24,095	8,939	6,821	8,010	--	--	
OTHER EASTERN HARDWOODS	99,221	--	21,208	17,386	20,890	12,364	21,231	6,142	--	--	
TOTAL HARDWOODS	6,224,602	--	1,196,154	1,394,169	1,184,856	923,133	557,999	836,299	131,992	--	
ALL SPECIES	16,260,066	1,851,426	3,488,431	3,500,595	2,781,700	1,943,499	1,092,874	1,419,785	181,756	--	

TABLE 11. --NET ANNUAL GROWTH AND REMOVALS OF GROWING STOCK ON COMMERCIAL FOREST LAND, BY SPECIES, 1972

SPECIES	NET ANNUAL GROWTH	ANNUAL TIMBER REMOVALS
-- THOUSAND CUBIC FEET --		
SOFTWOOD:		
YELLOW PINES	154,073	136,862
EASTERN WHITE PINE	--	--
SPRUCE AND FIR	--	--
CYPRESS	3,883	1,707
OTHER EASTERN SOFTWOODS	683	66
TOTAL SOFTWOODS	158,639	138,635
HARDWOOD:		
SELECT WHITE AND RED OAKS	10,246	6,331
OTHER WHITE AND RED OAKS	20,648	12,698
HICKORY	1,842	1,205
YELLOW BIRCH	--	--
HARD MAPLE	11	--
SWEETGUM	15,948	11,793
ASH, WALNUT, AND BLACK CHERRY	2,912	1,161
YELLOW-POPLAR	15,209	3,686
TUPELO AND BLACKGUM	9,548	10,239
BAY AND MAGNOLIA	146	75
OTHER EASTERN HARDWOODS	11,198	6,541
TOTAL HARDWOODS	87,708	53,729
ALL SPECIES	246,347	192,364

TABLE 18.--NET ANNUAL GROWTH AND REMOVALS OF SAWTIMBER ON COMMERCIAL FOREST LAND, BY SPECIES, 1972

SPECIES	NET ANNUAL GROWTH	ANNUAL TIMBER REMOVALS
- - - THOUSAND BOARD FEET - - -		
SOFTWOOD:		
YELLOW PINES	617,450	534,664
EASTERN WHITE PINE	--	--
SPRUCE AND FIR	--	--
CYPRESS	24,818	7,763
OTHER EASTERN SOFTWOODS	2,462	257
TOTAL SOFTWOODS	644,730	542,684
HARDWOOD:		
SELECT WHITE AND RED OAKS	32,082	18,839
OTHER WHITE AND RED O/KS	54,811	36,301
HICKORY	6,510	4,215
YELLOW BIRCH	--	--
HARD MAPLE	--	--
SWEETGUM	52,001	44,901
ASH, WALNUT, AND BLACK CHERRY	5,973	4,701
YELLOW-POPLAR	57,728	12,040
TUPELO AND BLACKGUM	37,343	34,194
BAY AND MAGNOLIA	450	--
OTHER EASTERN HARDWOODS	26,633	20,973
TOTAL HARDWOODS	273,531	176,164
ALL SPECIES	918,261	718,848

TABLE 19.--MORTALITY OF GROWING STOCK AND SAWTIMBER ON COMMERCIAL FOREST LAND, BY SPECIES, 1972

SPECIES	GROWING STOCK	SAWTIMBER
THOUSAND CUBIC FEET		THOUSAND BOARD FEET
SOFTWOOD:		
YELLOW PINES	17,628	34,954
EASTERN WHITE PINE	--	--
SPRUCE AND FIR	--	--
CYPRESS	189	291
OTHER EASTERN SOFTWOODS	74	373
TOTAL SOFTWOODS	17,891	35,618
HARDWOOD:		
SELECT WHITE AND RED OAKS	942	3,526
OTHER WHITE AND RED OAKS	2,351	6,847
HICKORY	801	3,950
YELLOW BIRCH	--	--
HARD MAPLE	--	--
SWEETGUM	3,183	13,018
ASH, WALNUT, AND BLACK CHERRY	789	1,650
YELLOW-POPLAR	494	1,594
TUPELO AND BLACKGUM	1,919	5,479
BAY AND MAGNOLIA	--	--
OTHER EASTERN HARDWOODS	2,545	7,029
TOTAL HARDWOODS	13,024	43,093
ALL SPECIES	30,915	78,711

TABLE 20. --VOLUME OF ALL LIVE TREES AND GROWING STOCK ON COMMERCIAL FOREST LAND, BY OWNERSHIP CLASS AND SPECIES GROUP, 1973

OWNERSHIP CLASS	ALL LIVE TREES				GROWING STOCK					
	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD
	THOUSAND CUBIC FEET									
NATIONAL FOREST	50,736	28,122	4,982	11,452	6,180	47,316	27,957	4,714	9,785	4,860
OTHER PUBLIC	303,654	223,343	6,007	44,600	29,704	270,514	214,097	5,608	34,354	16,445
FOREST INDUSTRY	775,601	376,487	33,215	278,329	87,570	687,603	363,472	31,458	224,812	67,861
FARMER	3,187,661	1,405,765	71,963	1,055,232	654,701	2,812,473	1,388,136	68,172	855,873	500,298
MISCELLANEOUS PRIVATE	1,695,693	835,173	70,251	476,727	313,542	1,830,257	812,515	63,739	382,233	241,770
ALL OWNERSHIPS	6,013,345	2,868,890	186,418	1,866,340	1,091,697	5,318,169	2,806,177	173,691	1,507,067	831,234

TABLE 21. --VOLUME OF SAWTIMBER ON COMMERCIAL FOREST LAND, BY OWNERSHIP CLASS AND SPECIES GROUP, 1973

OWNERSHIP CLASS	SMALL SAWTIMBER ¹					LARGE SAWTIMBER ²					
	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD	ALL SPECIES	PINE	OTHER SOFTWOOD	SOFT HARDWOOD	HARD HARDWOOD	
				THOUSAND BOARD FEET							
NATIONAL FOREST	62,261	35,387	11,392	10,897	4,585	122,204	78,071	4,945	24,598	14,590	
OTHER PUBLIC	538,642	472,118	7,961	37,656	20,907	505,970	224,983	8,952	51,735	20,240	
FOREST INDUSTRY	926,950	596,873	54,806	221,952	53,319	837,357	344,297	52,582	289,831	150,547	
FARMER	4,790,299	3,149,467	115,282	1,005,143	520,407	4,143,720	1,887,511	162,610	1,386,818	706,781	
MISCELLANEOUS PRIVATE	2,522,300	1,705,518	101,325	448,855	266,602	2,010,363	915,742	105,642	570,057	418,922	
ALL OWNERSHIPS	8,840,452	5,959,363	290,766	1,724,503	865,820	7,419,614	3,450,604	334,731	2,323,099	1,311,180	

¹ VOLUME OF SAWTIMBER TREES LESS THAN 15.0 INCHES AT D.B.H.² VOLUME OF SAWTIMBER TREES 15.0 INCHES AND LARGER AT D.B.H.

TABLE 24. --AVERAGE NET VOLUME PER ACRE OF SAWTIMBER, GROWING STOCK, AND OTHER LIVE TIMBER ON COMMERCIAL FOREST LAND, BY OWNERSHIP CLASS, MAJOR FOREST TYPE, AND SPECIES GROUP, 1973

FOREST TYPE, SPECIES GROUP, AND CLASS OF MATERIAL	ALL OWNERSHIPS			NATIONAL FOREST			OTHER PUBLIC			OWNERSHIP CLASS			FARMER			MISC. PRIVATE		
	BOARD FEET	CUBIC FEET	FEET	BOARD FEET	CUBIC FEET	FEET	BOARD FEET	CUBIC FEET	FEET	BOARD FEET	CUBIC FEET	FEET	BOARD FEET	CUBIC FEET	FEET	BOARD FEET	CUBIC FEET	FEET
PINE TYPES:																		
GROWING STOCK:																		
SOFTWOOD	2,383	767	3,449	910	2,010	645	931	435	3,776	1,086	2,208	742						
HARDWOOD	112	54	189	52	22	15	35	23	216	120	96	55						
TOTAL	2,495	830	3,639	962	2,032	660	966	458	3,993	1,206	2,304	797						
OTHER TIMBER:																		
SOFTWOOD	--	20	--	6	--	29	--	18	--	14	--	23						
HARDWOOD	--	25	--	27	--	12	--	6	--	44	--	27						
TOTAL	--	45	--	33	--	41	--	24	--	58	--	50						
OAK-PINE TYPES:																		
GROWING STOCK:																		
SOFTWOOD	2,710	684	6,046	1,106	2,509	585	2,084	544	3,022	750	2,275	605						
HARDWOOD	854	383	2,289	583	1,307	415	300	325	860	421	713	319						
TOTAL	3,564	1,066	8,335	1,689	3,816	1,000	3,374	869	3,882	1,171	2,987	925						
OTHER TIMBER:																		
SOFTWOOD	--	13	--	--	--	36	--	9	--	10	--	15						
HARDWOOD	--	102	--	--	--	117	--	53	--	117	--	89						
TOTAL	--	115	--	--	--	147	--	62	--	127	--	104						
UPLAND HARDWOOD TYPES:																		
GROWING STOCK:																		
SOFTWOOD	659	177	--	--	266	70	472	107	646	188	790	184						
HARDWOOD	1,502	619	--	--	--	68	1,472	550	1,574	672	1,554	591						
TOTAL	2,160	796	--	--	266	138	1,944	657	2,219	859	2,343	775						
OTHER TIMBER:																		
SOFTWOOD	--	2	--	--	--	--	--	6	--	1	--	3						
HARDWOOD	--	143	--	--	--	53	--	101	--	157	--	133						
TOTAL	--	145	--	--	--	53	--	107	--	158	--	137						
BOTTOMLAND HARDWOOD TYPES:																		
GROWING STOCK:																		
SOFTWOOD	1,020	253	3,059	854	1,012	269	1,348	315	879	207	1,025	232						
HARDWOOD	3,519	1,192	7,253	1,959	2,515	948	2,733	1,124	3,963	1,277	3,283	1,102						
TOTAL	4,539	1,446	10,313	2,813	3,527	1,217	4,081	1,440	4,842	1,484	4,309	1,383						
OTHER TIMBER:																		
SOFTWOOD	--	11	--	47	--	--	--	8	--	8	--	18						
HARDWOOD	--	312	--	404	--	455	--	300	--	327	--	279						
TOTAL	--	323	--	452	--	455	--	308	--	334	--	297						
ALL TYPES:																		
GROWING STOCK:																		
SOFTWOOD	1,861	553	3,478	876	1,830	563	1,059	339	2,244	615	1,762	546						
HARDWOOD	1,154	434	1,455	392	335	130	723	256	1,528	573	1,062	389						
TOTAL	3,016	986	4,944	1,268	2,165	693	1,782	634	3,771	1,187	2,824	935						
OTHER TIMBER:																		
SOFTWOOD	--	14	--	12	--	25	--	15	--	9	--	18						
HARDWOOD	--	115	--	80	--	60	--	74	--	149	--	104						
TOTAL	--	129	--	92	--	85	--	89	--	158	--	122						
ALL TIMBER	3,016	1,115	4,944	1,360	2,165	778	1,782	783	3,771	1,346	2,824	1,056						

¹ ROUGH AND ROTTEN TREES.

TABLE 25.--LAND AREA, BY CLASS, MAJOR FOREST TYPE, AND SURVEY COMPLETION DATE, 1952, 1962, AND 1973

LAND USE CLASS	SURVEY COMPLETION DATE			CHANGE 1962-1973
	1952	1962	1973	
- - - - - ACRES - - - - -				
FOREST LAND:				
COMMERCIAL FOREST LAND:				
PINE AND OAK-PINE TYPES	3,454,600	3,669,934	3,419,684	-250,250
HARDWOOD TYPES	1,934,300	1,997,044	1,972,213	- 24,831
TOTAL	5,388,900	5,666,978	5,391,897	-275,081
NONCOMMERCIAL FOREST LAND:				
PRODUCTIVE-RESERVED	4,900	2,200	5,738	+ 3,538
UNPRODUCTIVE	86,000	--	--	--
TOTAL	90,900	2,200	5,738	+ 3,538
NONFOREST LAND:				
CROPLAND	2,332,800	2,113,719	2,098,231	- 15,488
PASTURE AND RANGE	178,000	208,315	166,791	- 41,524
OTHER	364,000	371,492	678,400	+306,908
TOTAL	2,874,800	2,693,526	2,943,422	+249,896
ALL LAND ¹	8,354,600	8,362,704	8,341,057	- 21,647

¹ EXCLUDES ALL WATER AREAS.

TABLE 26. -- VOLUME OF SAWTIMBER, GROWING STOCK, AND ALL LIVE TIMBER ON COMMERCIAL FOREST LAND, BY SPECIES GROUP, DIAMETER CLASS, AND SURVEY COMPLETION DATE

SPECIES GROUP	YEAR	ALL CLASSES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
			5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0 AND LARGER
SAWTIMBER (IN THOUSAND BOARD FEET)											
SOFTWOOD	1952	7,422,139	--	--	1,480,260	1,825,569	1,490,103	1,042,015	696,307	383,402	504,483
	1962	8,468,510	--	--	1,742,954	2,026,891	1,734,121	1,233,821	861,342	357,220	512,161
	1973	10,035,464	--	--	1,851,426	2,292,277	2,106,426	1,596,844	1,020,366	534,875	633,250
HARDWOOD	1952	5,946,473	--	--	--	957,113	1,279,355	1,001,553	920,849	515,268	1,232,335
	1962	5,641,998	--	--	--	1,117,655	1,312,663	1,106,256	811,909	491,681	801,834
	1973	6,224,602	--	--	--	1,196,154	1,394,169	1,184,856	923,133	557,999	968,291
GROWING STOCK (IN THOUSAND CUBIC FEET)											
SOFTWOOD	1952	2,276,982	244,247	386,375	445,057	431,985	308,446	194,842	121,647	65,149	79,234
	1962	2,639,037	298,717	455,374	524,039	479,624	358,957	230,707	150,479	60,700	80,440
	1973	2,979,868	323,932	453,723	556,573	542,434	436,044	298,565	178,258	90,884	99,455
HARDWOOD	1952	2,038,799	143,186	251,656	310,037	295,441	317,379	220,947	186,520	99,090	214,543
	1962	2,105,776	175,756	302,287	328,286	331,157	325,642	244,045	164,454	94,554	139,595
	1973	2,338,301	221,681	332,338	359,874	354,381	345,825	261,363	186,968	107,301	168,570
ALL LIVE TIMBER (IN THOUSAND CUBIC FEET)											
SOFTWOOD	1952	2,336,979	258,808	401,584	458,213	437,947	310,612	196,528	121,865	66,898	84,524
	1962	2,708,603	316,527	473,298	539,532	486,232	361,466	232,678	150,740	62,330	85,800
	1973	3,055,308	342,421	471,898	572,685	549,887	439,204	301,154	178,555	93,372	106,132
HARDWOOD	1952	2,554,945	240,948	348,068	391,502	349,460	357,717	253,499	213,119	113,148	287,484
	1962	2,649,991	295,755	418,094	414,544	391,703	367,034	279,979	187,907	107,929	187,046
	1973	2,958,037	373,216	459,426	454,465	419,343	389,788	299,823	213,652	122,487	225,937

TO PROVIDE A BASIS FOR VALID COMPARISONS, ADJUSTMENTS HAVE BEEN MADE TO ALLOW FOR DIFFERENCES IN VOLUME TABLES AND SAWTIMBER SPECIFICATIONS USED IN PREVIOUS SURVEYS.

Cost, Noel D.

1974. Forest statistics for the Southern Coastal Plain of North Carolina, 1973. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-26, 34 pp.

Between 1962 and 1973, area of commercial forest land declined by almost 5 percent, to 5.4 million acres, in this 21-county area. Volume of growing-stock timber increased by 573 million cubic feet, or 12 percent. Softwoods (mainly pine) accounted for almost 60 percent of the net gain in volume. Over 430,000 acres were artificially regenerated since 1962, but 1.2 million acres still need regeneration or conversion. In 1972, growth exceeded removals by 22 percent, with hardwood accounting for 63 percent of the growth over removals. Pine provided 71 percent of the removals in 1972, as compared to 55 percent in 1962.

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Forest Service - U.S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

5.00.21

GEORGIA'S TIMBER, 1972



MAY 1974

USDA
FOREST SERVICE
RESOURCE BULLETIN SE-27

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Foreword

USDA Forest Service Resource Bulletin SE-27, "Georgia's Timber, 1972," by Herbert A. Knight and Joe P. McClure.

Please make the following changes in this Bulletin:

Page 19, QUALITY OF TIMBER LIMITS UTILIZATION, last sentence in first paragraph should read: "Such residual conditions also fostered wildfire, disease, insects, and other damaging agents."

Page 39, Table 16. Table title should read: "Net annual growth and removals of growing stock on commercial forest land, by species, Georgia, 1971."

Thank you.

ent Station, with headquarters at Asheville, North Carolina. The objective is to periodically evaluate the

purpose of this publication is to appraise the timber situation.



ROBERT G. McALPINE, Assistant Director
Southeastern Forest Experiment Station

The authors wish to express their thanks to Mr. Ollie L. Knott, Jr., of the Georgia Forestry Commission for providing the cover photograph and illustrations on pages 4, 10, 16, 21, and 27.

GEORGIA



Figure 1. — Forest Survey Units in Georgia.

GEORGIA'S TIMBER, 1972

by

HERBERT A. KNIGHT, Resource Analyst

and

JOE P. McCLURE, Principal Resource Analyst

Highlights

Since the third Forest Survey in Georgia was completed in 1961—

—area of commercial forest land has decreased from 25.8 to 24.8 million acres, or by 3.7 percent. This net decrease masks land-use changes which occurred on more than 3 million acres. About 2 million acres of commercial forest were diverted to nontimber uses, and more than 1 million acres of new forest were added. With 66 percent of its total land area in commercial forest, Georgia still has more timberland than any other state in the Nation except Oregon.

—area of commercial forest land classified as farmer-owned has declined from 15.0 to 8.4 million acres, or by 44 percent. Although a large share of the forest diversion occurred in this ownership class, most of the decline is attributed to land transactions and changes in owner occupations. Miscellaneous private holdings soared from 4.9 to 10.5 million acres, and forest industry lands increased from 3.9 to 4.3 million acres. Except for the withdrawal of 0.3 million acres of wetlands in the Okefenokee National Wildlife Refuge, there has been little change within the public ownerships, which total 6 million acres.

—volume of growing-stock timber has increased from 19.6 to 25.3 billion cubic feet, or by 29 percent. Almost 80 percent of this increase occurred in the piedmont and mountains and is largely attributed to the high proportion of young sapling stands which grew to pole timber size during the period. Two species, loblolly pine and slash pine, accounted for more than half of the net gain in volume across the State. The 1972 inventory included 72.2 billion board feet of sawtimber.

—heavy timber harvesting coupled with extensive tree planting, stand conversion, and other forestry activity have created a rather delicate timber supply situation in a group of counties south of the Altamaha River in Southeast Georgia. This was the only extensive area found where annual removals were exceeding growth. Almost 40 percent of the softwood removals came out of the Southeast Survey Unit in 1971. Some 1.6 million acres, or about half of all the plantations, have been established in this Unit; however, 70 percent of these planted stands is less than 15 years old.

—the rate of net annual growth has increased by 50 percent to an average of 63 cubic feet per acre of commercial forest. This represents a record statewide average

for the Southeast and is attributed to high ingrowth, improvement in stocking, better protection, and more intensive timber cultural practices. In 1971, net growth of growing stock totaled almost 1.6 billion cubic feet and included more than 5.2 billion board feet of sawtimber. Annual growth loss to mortality has declined from 15 to 9 percent.

—about 1.0 million acres of commercial forest land have been harvested, thinned, cleared, or otherwise cut into annually. In 1971, removals of growing stock totaled just over 1.0 billion cubic feet and included 3.7 billion board feet of sawtimber. About 75 percent of this volume removed was converted into timber products, 12 percent was left in the woods in the form of logging residue, and the remaining 13 percent was attributed to cultural practices, land clearing, and other land-use changes where the timber was not used. Pulpwood is the leading timber product in terms of volume and accounted for 55 percent of the total roundwood output in 1971.

—more than 1.7 million acres, or 7 percent of the commercial forest land, have been planted or artificially regenerated. This brings the total area planted or seeded

up to 3.2 million acres. With most pine plantations likely to be harvested within 30 years of their establishment, conceivably, a third or more of the pine cut in Georgia could be coming from plantations by 1985.

—about half of the land classified as commercial forest has been treated or significantly disturbed. Differences were observed, however, in the occurrence of treatment or disturbance among the broad management and ownership classes. Only about 41 percent of the stands occupied with pine forest types in 1972 had gone untreated or undisturbed, compared to 58 percent for the stands occupied with hardwood types. By broad ownership class, the highest rate of treatment and disturbance was observed on forest industry lands and the lowest rate on public lands.

—the overall outlook for future timber supplies has improved. For example, a projection based on the 1961 conditions estimated that the prospective available cut could increase to 1.3 billion cubic feet annually by 1990. A similar projection based on the 1972 conditions suggests that the prospective available cut could increase to more than 1.7 billion cubic feet annually by the end of this century.



Timber Trends

AREA OF COMMERCIAL FOREST DECREASING

Georgia, with 24.8 million acres of commercial forest, has more timberland than any other state except Oregon. Georgia is also a major agricultural state and since the early thirties the Forest Survey has monitored changes in land use back and forth between forest and agriculture. For at least three decades, the natural reforestation of idle and abandoned agricultural lands, along with extensive tree planting on open areas, more than offset all diversions of forest to other land uses. These changes eventually added some 4.5 to 5.0 million acres to the area classified as commercial timberland.

As additions of new forest land diminished and the rate of forest diversion accelerated, the forest base began to recede across the entire State. Between 1961 and 1972, the net loss of commercial forest land totaled almost 1 million acres, or 3.7 percent. There was a net decrease in each of the five Survey Units (fig. 1).

This net decrease of slightly less than 1 million acres in Georgia's timber base over an 11-year period masks land-use changes on more than 3 million acres of land. About 2 million acres of commercial forest were diverted to nontimber uses, and more than 1 million acres of new forest were added. A further description and breakdown of these changes by Survey Unit adds resolution to the overall land-use picture (table I).

Tree planting on open lands accounted for about 3 percent of the forest additions. Most of the remaining additions resulted from the natural reversion of idle lands, and therefore did not represent any planned or direct forestry investment on the part of the owners or land managers. Because idle agricultural land is the primary source of prospective forest additions, a downward trend in idle land suggests that there will be less opportunity in the future for adding forest acres. For example, the area of idle agricultural land in Georgia has decreased from 2.1 to 0.7 million acres within the last 20 years.

The withdrawal of more than 325,000 acres in the wetlands' portion of the Okefenokee National Wildlife Refuge in Southeast Georgia from commercial forest explains a significant part of the overall reduction in the timber base. Commercial timber harvesting is no longer permitted on these lands; therefore, they were reclassified to productive-reserved forest in the 1972 Forest Survey. Similar withdrawals of this magnitude are not anticipated.

Altogether, the clearing and diversion of commercial forest to agricultural use removed some 956,000 acres from the forest base. More than half of the diversion to agricultural use was to pasture, a common land-use change observed throughout the State. About 420,000 acres of the diversion was to cropland, largely concentrated in the coastal plain. Relatively little cropland was added in the piedmont and mountains. Additional diversions of forest land to agricultural uses are probable.

The diversions to urban and other uses totaled almost 610,000 acres. This broad use class includes home sites and residential development, roads and highways, utility rights-of-way, and a host of other miscellaneous land uses which are rather permanent in nature. More than a third of these diversions occurred in the North Central Unit, which includes the Atlanta Metropolitan Area. Although Georgia's population has been growing at an average rate of 65,000 people annually in recent years, how the population disperses is more important than changes in the population itself from the standpoint of land-use impact. While most of the direct impact of the interstate highway system on the land-use pattern has already been absorbed, there is a proposal to extend the Blue Ridge Parkway into Georgia. If this extension materializes, a significant number of forest acres will be involved.

Although most of the large water impoundments which exist in Georgia were created prior to 1961, construction of new lakes and ponds flooded an estimated 83,000 acres previously classified as forest.

Table I. — Changes in area of commercial forest land, by Survey Unit, Georgia, 1961-1972

Survey Unit	Area of commercial forest land in:		Net change	Changes							
				Total gain	Additions from:		Total loss	Diversions to:			
	1961	1972			Non-forest	Noncommercial forest		Noncommercial forest	Agri-culture	Urban and other	Water
----- <i>Thousand acres</i> -----											
Southeast	7,945.0	7,440.6	-504.4	201.5	201.5	—	705.9	335.8	221.3	129.7	19.1
Southwest	3,064.5	2,884.8	-179.7	186.4	186.4	—	366.1	12.8	294.4	45.8	13.1
Central	7,416.6	7,321.9	- 94.7	250.0	249.0	1.0	344.7	3.9	203.1	110.4	27.3
North Central	4,084.6	3,999.2	- 85.4	287.9	287.9	—	373.3	1.9	140.8	215.8	14.8
North	3,277.4	3,192.5	- 84.9	130.7	128.2	2.5	215.6	1.7	97.0	107.8	9.1
State	25,788.1	24,839.0	-949.1	1,056.5	1,053.0	3.5	2,005.6	356.1	956.6	609.5	83.4

In summary, most of the land-use trends point to a further reduction in commercial forest land in Georgia. Similar trends prevail throughout much of the Nation.

SHARP DECLINE IN FARM WOODLAND

The area of commercial forest land classified as farmer-owned has declined from about 15.0 to 8.4 million acres, or by 44 percent. Although a large share of the forest diversion occurred in this ownership class, most of the decline is attributed to land transactions and changes in owner occupations. Undoubtedly, some inconsistency between surveys in the classifications of forest owners is also involved but not to the extent that would greatly distort the measure of real change. The fact remains that the greatest change in the forest ownership pattern in Georgia between 1961 and 1972 occurred in a real shift from farmer to miscellaneous private.

Most of the loss in farmer-owned forest land does show up as a gain in the miscellaneous private owner class where area of commercial forest soared from 4.9 to 10.5 million acres. Miscellaneous private owners now control more of Georgia's timberland than any other class of owner.

Other changes in forest ownership include a 9-percent gain in forest industry lands, which increased from 3.9 to 4.3 million acres. In addition to these fee-simple holdings, forest industries have almost a million acres of commercial forest under long-term lease. In most of the tables by ownership in this report, the statistics on these leased lands are included with the actual owner class. A compilation of the Statewide statistics is available, however, where the leased lands are treated as a separate ownership class.

Except for the withdrawal of the wetlands' portion of the Okefenokee National Wildlife Refuge, there has been little change within the public ownership pattern. Only about 1.6 million acres, or 6 percent, of the commercial forest land is publicly owned. More than half of these publicly owned timberlands are on the Chattahoochee and Oconee National Forests. Other large public holdings of commercial forest land include the Fort Stewart, Fort Benning, and Fort Gordon military reservations; Waycross State Forest, Piedmont National Wildlife Refuge, and lands around the major reservoirs constructed by the Corps of Civil Engineers.

BUILDUP IN TIMBER INVENTORY ACCELERATES

The inventory of growing-stock timber on commercial forest land increased from 19.6 to 25.3 billion cubic feet, or by 29 percent, between 1961 and 1972. This means that the rate of increase in timber volume accelerated in spite of the reduction in forest area (fig. 2). This sizable buildup in timber inventory is largely attributed to the high proportion of young stands which grew from sapling to poletimber size during the period. In 1972, sapling and seedling stands occupied 25 percent of the commercial forest, as compared to 45 percent in 1961.

This buildup in timber inventory has not been uniformly distributed across the State. Almost 80 percent of the volume increase since 1961 has occurred in the piedmont and mountains. By Forest Survey Unit, the increase ranged from a low of 9 percent in Southeast Georgia to a high of 58 percent in North Central Georgia.

Two species, loblolly pine and slash pine, accounted

for more than half of the total net gain in volume. Generally, forest managers have favored loblolly and slash pine over all other species in timber cultural activities. This has been especially true in artificial reforestation. Substantial increases in volume were also found in most of the oaks, sweetgum, and yellow-poplar. Smaller increases in volume occurred in such major species as shortleaf pine, blackgum, hickory, and red maple. Volume in longleaf pine, cypress, and ash declined slightly.

Current volume equations and merchantability standards were applied to stem counts made in the previous surveys to provide a basis for valid comparisons in volume. This means that the volumes published previously have been adjusted, and changes between surveys are based on changes in numbers of trees by size classes.

Although this analysis of volume trends is based on cubic feet of all growing-stock trees 5.0 inches d.b.h. and larger, changes in the volume of sawtimber trees follow a similar pattern. The 1972 inventory included 72.2 billion board feet of sawtimber.

TIMBER SHORTAGE IDENTIFIED IN SOUTHEAST GEORGIA

The only extensive area within the State which experienced a reduction in timber volume was a group of counties south of the Altamaha River in Southeast Georgia.

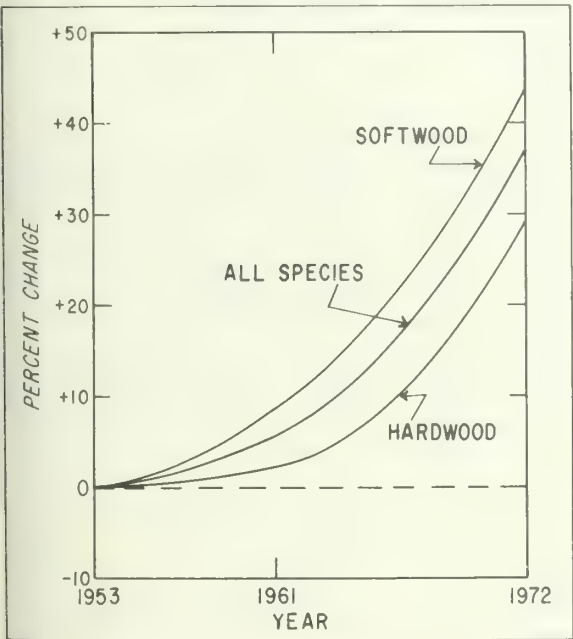


Figure 2. — Percent change in the volume of growing-stock timber in Georgia since 1953.

Unusually heavy timber harvesting in this area, coupled with extensive tree planting, stand conversion, and other forestry activity, have created a rather delicate timber supply situation in which removals are exceeding growth. One of the heaviest concentrations of wood-using industry in the South is found in and around this area. Almost 40 percent of the softwood timber removals from Georgia's commercial forests came out of the Southeast Unit in 1971 (fig. 3). Stumpage prices are higher in this area than in any other part of the State, reflecting the higher demand.

The Survey findings suggest that forest industries drawing timber from this area will need to search out other sources of supply while awaiting young stands to reach merchantable size. Some 1.6 million acres, or about half of all the plantations in the State, have been established in Southeast Georgia. Seventy percent of these planted stands, however, is less than 15 years old.

GROWTH RATE UP 50 PERCENT

Net annual growth has responded to an improvement in stocking, better protection, and more intensive timber cultural practices to a point where growth exceeds annual removals by 55 percent (fig. 4). In 1971, net growth of growing stock totaled almost 1.6 billion cubic feet and included more than 5.2 billion board feet of sawtimber. This means that net growth averaged about 63 cubic feet per acre of commercial forest, or roughly 50 percent better than the growth rate determined in the 1961 Survey.

As in the case of inventory volume discussed earlier in this report, the growth rate and other components of change varied considerably by species and Forest Survey Unit (table II). For example, the margin of growth over removals ranged from a low of 12 percent in Southeast Georgia, to a high of 108 percent in North Central Georgia. When expressed as a percent of inventory, net growth of softwoods averaged 7.8 percent in 1971 for the State as a whole, compared to only 4.0 percent for hardwoods.

The remeasurement of permanent sample plots provided data for a detailed breakdown of gross growth into its various components. Survivor growth, the volume increment of growing-stock trees 5.0 inches d.b.h. and larger in the inventory at the beginning of the year and still in the inventory at the end of the year, accounted for 78 percent of the gross growth. In-growth, the net volume of growing-stock trees reaching

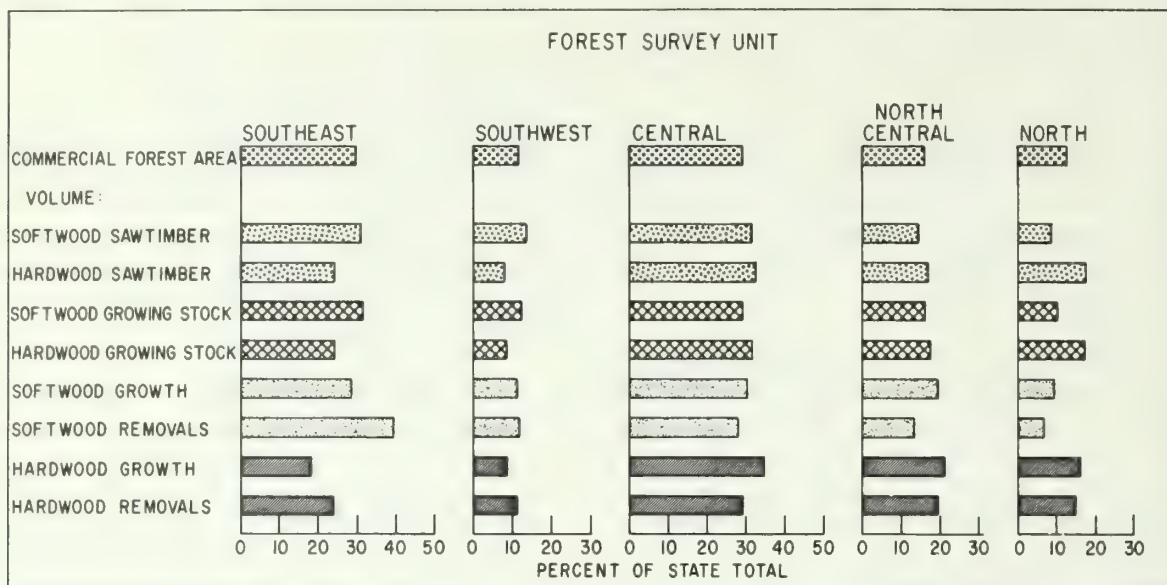


Figure 3. — Relative importance of forest resource by Survey Unit, Georgia, 1972.

5.0 inches d.b.h. during the year, accounted for another 19 percent. Growth on ingrowth, growth on removals before cutting, and growth on mortality before death made up the remaining 3 percent.

In 1971, mortality of growing stock totaled almost 156 million cubic feet and reduced gross growth by 9 percent. Suppression, weather, and disease were the leading identifiable causes of death across the State.

Table II. — Annual components of change in the volume of growing stock on commercial forest land, by Survey Unit and by softwood and hardwood, Georgia, 1971

Survey Unit and species group	Gross growth	Components of growth					Mortality	Net growth	Removals	Net change
		Survivor growth	Ingrowth	Growth on ingrowth	Growth on removals	Growth on mortality				
----- Million cubic feet -----										
Southwest:										
Softwood	355.0	281.6	59.0	5.1	8.7	0.6	20.2	334.8	311.4	+23.4
Hardwood	94.1	77.5	14.9	0.7	0.8	0.2	14.6	79.5	57.0	+22.5
Total	449.1	359.1	73.9	5.8	9.5	0.8	34.8	414.3	368.4	+45.9
Southwest:										
Softwood	143.4	114.4	23.9	2.1	2.7	0.3	10.6	132.8	91.9	+40.9
Hardwood	46.6	37.0	8.2	0.5	0.7	0.2	9.0	37.6	26.6	+11.0
Total	190.0	151.4	32.1	2.6	3.4	0.5	19.6	170.4	118.5	+51.9
Central:										
Softwood	380.6	297.3	68.3	7.1	6.9	1.0	28.8	351.8	220.9	+130.9
Hardwood	173.9	139.0	31.3	2.0	1.1	0.5	25.4	148.5	68.9	+79.6
Total	554.5	436.3	99.6	9.1	8.0	1.5	54.2	500.3	289.8	+210.5
North Central:										
Softwood	244.9	175.4	59.7	5.9	3.3	0.6	18.4	226.5	105.9	+120.6
Hardwood	100.3	80.8	16.8	1.5	0.9	0.3	10.0	90.3	46.4	+43.9
Total	345.2	256.2	76.5	7.4	4.2	0.9	28.4	316.8	152.3	+164.5
North:										
Softwood	113.4	87.0	23.0	1.8	1.4	0.2	6.2	107.2	53.7	+53.5
Hardwood	80.6	65.1	13.7	1.0	0.6	0.2	12.4	68.2	35.1	+33.1
Total	194.0	152.1	36.7	2.8	2.0	0.4	18.6	175.4	88.8	+86.6
State:										
Softwood	1,237.3	955.7	233.9	22.0	23.0	2.7	84.2	1,153.1	783.8	+369.3
Hardwood	495.5	399.4	84.9	5.7	4.1	1.4	71.4	424.1	234.0	+190.1
Total	1,732.8	1,355.1	318.8	27.7	27.1	4.1	155.6	1,577.2	1,017.8	+559.4

Insect losses ranked fourth and were largely attributed to pine bark beetle infestations. Losses to wildfire ranked fifth and were down substantially when compared with losses in previous surveys. The number of wildfires each year has remained high, but because of the excellent fire control program in the State, individual burns have generally been confined to small areas (table III). Finally, this latest Survey measured a significant volume of hardwood mortality caused by beaver activity along many of the streams. These losses occurred mostly in the southeastern and central sections of the State. More

than half of the total mortality was southern yellow pine, which is plagued with two of the forest's worst enemies—fusiform rust and bark beetles.

Overall, there has been a decline in the growth loss attributed to mortality, and this explains part of the increase in the rate of net growth. For example, the 1961 survey indicated that mortality losses were reducing gross growth by 15 percent annually. The 9-percent reduction determined for 1971, therefore, indicates a marked improvement.

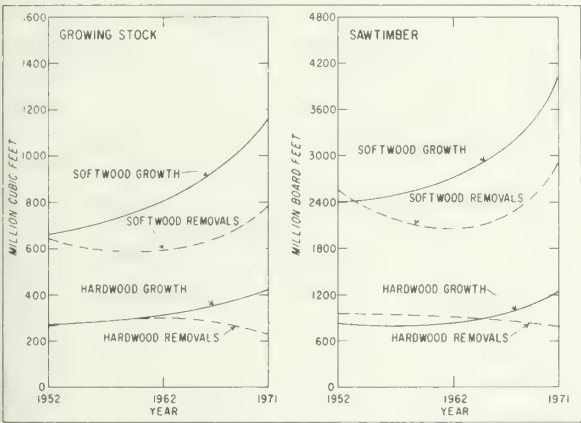


Figure 4. — Trend in net growth and timber removals in Georgia since 1952.

Table III. — Forest area under fire protection, protected area burned, number of fires, and average size of fires, Georgia, 1961-1971¹

Year	Forest area protected		Protected area burned		Fires	Average size of fires
	Thousand acres	Percent	Thousand acres	Percent		
1961	22,930	98.55	67	0.29	8,900	8
1962	22,931	98.55	56	0.25	8,654	6
1963	24,528	98.43	63	0.25	10,577	6
1964	24,842	98.45	30	0.12	6,474	5
1965	25,083	99.22	31	0.12	6,895	4
1966	25,110	99.50	65	0.26	8,222	8
1967	25,240	100.00	51	0.20	9,804	5
1968	25,284	100.00	90	0.35	11,602	8
1969	25,304	100.00	47	0.19	8,799	5
1970	32,278	100.00	60	0.19	13,835	4
1971	28,785	100.00	43	0.15	10,071	4

¹Source: U. S. Department of Agriculture, Forest Service, *Forest Fire Statistics, 1961-1971*.



Timber Products Output

1971 TIMBER HARVEST VALUED AT \$122 MILLION

The volume of roundwood timber products harvested from Georgia's forests in 1971 totaled 813 million cubic feet. The stumpage value of the timber which provided these products was estimated at \$122 million. A canvass of the primary wood-using industries conducted by the Georgia Forestry Commission showed that more than 350 mills operated in the State during 1971 (fig. 5). These mills received logs, bolts, and other forms of roundwood from which they manufactured lumber, veneer, plywood, pulp, paper, and other products. In addition, an undetermined number of secondary manufacturing plants located in the State were involved in the remanufacture of lumber, plywood, paper, and other products into finished goods such as furniture, fixtures, and containers. Altogether, the timber-based industries employed some 53,000 people and generated an annual payroll exceeding \$315 million. These figures are presented to provide some measure of the economic importance of timber in the State.

PULPWOOD IS THE LEADING TIMBER PRODUCT

In terms of volume, pulpwood is the leading timber product harvested from Georgia's forests and accounted for 55 percent of the total roundwood product output in 1971. In fact, the State leads the Nation in pulpwood production.

In addition to the 445 million cubic feet of roundwood output, sawmills and other wood-using plants provided the pulpmills with almost 97 million cubic feet of wood fiber in the form of plant byproducts. These byproducts are credited to improved timber utilization and did not involve additional cut of standing timber. With the current rate of expansion in the lumber and plywood industries, it is conceivable that the pulpmills will be obtaining an even greater share of

their wood requirements from byproducts. In recent years, a substantial number of chip-n-saw mills have been established.

The pulp industry, dependent primarily upon wood fiber, is able to utilize most species and a wide range of tree sizes and quality classes. Nevertheless, the industry's current procurement system reflects a strong preference for softwood, and is often in competition with the lumber industry for the sawtimber-quality trees. For example, 89 percent of the round pulpwood produced in 1971 was softwood, and included almost 1 billion board feet of sawtimber, based upon Forest Survey's merchantability standards. This finding suggests a further opportunity for alleviating some of the pressure on the supply of softwood sawtimber. For example, more integrated product processing could channel more of larger trees into meeting the lumber and plywood demands.

Since 1961, pulpwood production has increased by almost 50 percent; however, production has leveled off in the past two years (fig. 6). Some soft spots have developed in the pulp markets, and the rate at which new capacity was being added has slowed markedly. The pulp industry has expended larger sums of money on modernization and on air and water pollution abatement, which undoubtedly has affected the allocation of available capital. As long as population and economic activity continue to grow, however, the demand for pulp and paper products will likely be strong. Ultimate scarcities and rising prices of raw materials such as petroleum, together with environmental factors relating to manufacturing pollution and problems of disposal of nonbiodegradable products, will tend to limit inroads of competitive materials into the pulp, paper, and board markets.

In 1971, pulpmills with a combined capacity of 13,888 tons per day operated at 15 locations in Georgia.

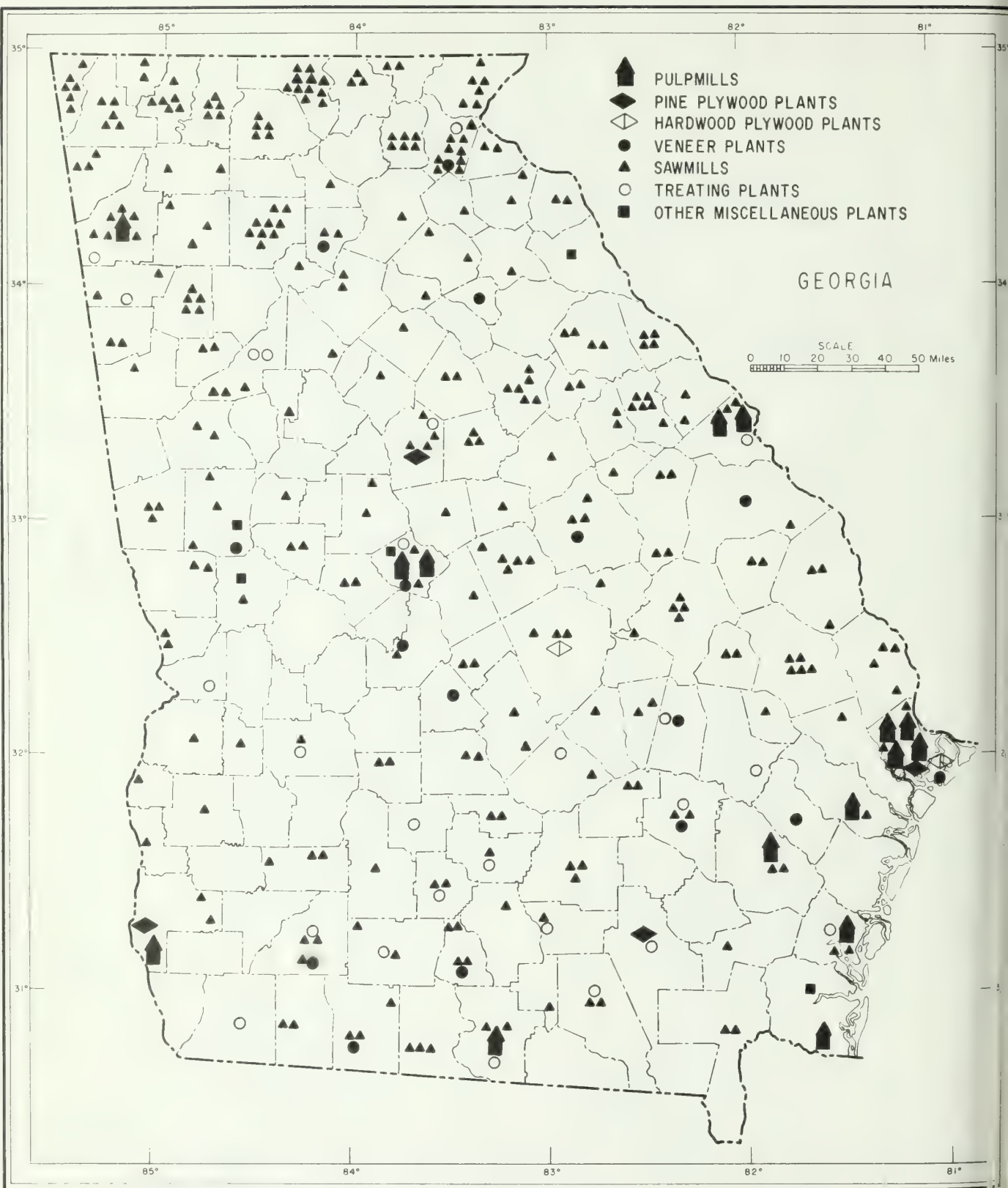


Figure 5. — Location of primary wood-using industries in Georgia, 1971.

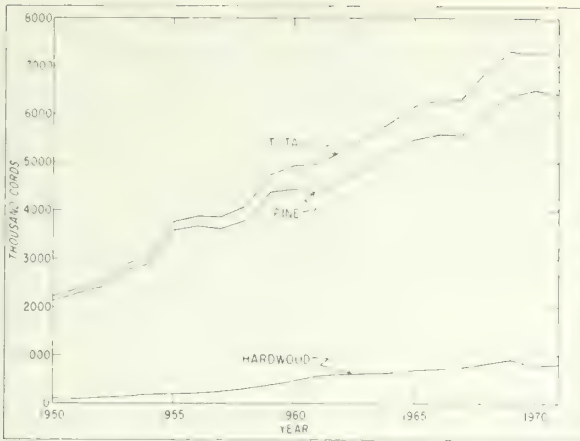


Figure 6. — Pulpwood production in Georgia, including byproducts, 1950 to 1971.

In addition, 23 pulpmills located outside the State drew wood from Georgia's forests. Based on the southern pulpwood production study, 75 percent of the 1971 production was processed at mills within the State. The remaining 25 percent was shipped to mills outside the State. In the total interstate flow of pulpwood, imports exceeded exports by about 8 percent.

SOFTWOOD SAW-LOG OUTPUT UP

Saw logs are the second leading timber product and accounted for 36 percent of the total roundwood output in 1971. Although annual estimates of saw-log output are not available, lumber production figures reflect the trends sufficiently for this analysis (fig. 7).

Over the years, the lumber industry in Georgia has experienced several traumatic fluctuations in the demand for its products. In recent decades, the strongest

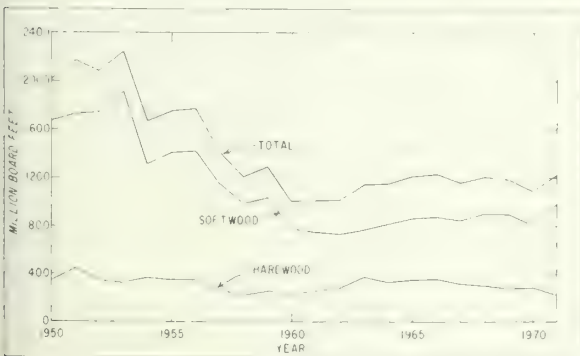


Figure 7. — Lumber production in Georgia, 1950 to 1971.
Sources: Bureau of the Census and 1971 industry canvass.

demands developed during the early forties and again in the early fifties. War economies, of course, stimulated both of these booms. During each of these periods, production rose to levels near or exceeding 2 billion board feet annually. Short and modest lumber recessions occurred in between. The big decline, however, started in 1953 and extended to 1960. Over this 7-year period, annual lumber production dropped off by 55 percent and reached a low of 1,007 million board feet. Changes in types of construction and strong competition from West Coast species were two of the major factors which contributed to the decline. Literally hundreds of small, inefficient sawmills, many of them the portable type, closed down and vanished from the scene during this period. For the first time, pulpwood surpassed saw logs and became the State's leading timber product. During the sixties, the lumber industry experienced some firming in its markets, and there was a modest upward trend in production.

Then, beginning in 1970, a boom in new home building of unprecedented proportion started to sweep the Nation. Within a 2-year period, the number of housing starts soared from an annual rate of less than 1.5 million to an all-time record of almost 2.4 million starts in 1972. At the time this report is being written, the housing boom is continuing with little abatement, and the demand for softwood lumber is threatening to overtake supplies. Sawmills in Georgia and elsewhere are operating at near full capacity, and new mills are under construction or on the drawing boards.

Timing of the fourth Forest Survey in Georgia has been such that only the beginning of the upsurge in softwood saw-log output shows up in the statistics. The 1971 estimate of more than 1.2 billion board feet is about 21 percent greater than the 1961 figure. All indications are, however, that the 1972 output was substantially higher.

Softwoods, primarily southern yellow pine, provided about 80 percent of the 1971 output; however, slightly over 300 million board feet of hardwood saw logs was harvested. The year 1971 might best be described as rather sluggish for the hardwood lumber market but, here again, the tempo has picked up on the heels of the Forest Survey. The furniture market is a major factor in the demand for hardwood lumber, and this market lags slightly behind that for housing.

About 300 sawmills operated in Georgia in 1971, and these mills received over 95 percent of the State's saw-log harvest. Industry canvasses indicate that the

interstate flow of saw logs was small but that Georgia imported 75 percent more than was shipped outside the State.

OUTPUT OF VENEER LOGS DOUBLES

Veneer logs are now the third leading timber product in terms of volume, and accounted for 5 percent of the total roundwood output in 1971. Production totaled 40 million cubic feet compared to only 18 million cubic feet in 1961. All of this increase is attributed to the introduction and development of a new industry in Georgia—pine plywood.

The first major pine plywood operation in Georgia was started at Savannah in 1966. By 1971, plants had been added at Cedar Springs, Waycross, and Monticello. Pine plywood production in Georgia has now climbed to more than 500 million square feet, 3/8-inch basis, annually. As in the case of softwood lumber, the surge in new home building has created a strong demand for plywood. If such a strong demand continues, further expansion of the pine plywood industry in Georgia can be expected.

In contrast to the rapid increase in the output of softwood veneer logs, the output of hardwood has declined. The annual harvest of hardwood veneer logs has dropped by about one-fourth since the early sixties. An estimated 186 million square feet, as reported, of hardwood plywood was produced in Georgia in 1972. The hardwood veneer and plywood industries face strong competition from foreign imports. The continuing displacement of wooden containers by fiber, plastic, and other substitutes has also been a factor in the hardwood veneer market.

OUTPUT OF OTHER ROUNDWOOD PRODUCTS

Other timber products harvested in 1971 included fuelwood, poles, piling, posts, cooperage, and excelsior bolts. Collectively, the volume of all these products totaled an estimated 31 million cubic feet. When compared with the 1961 estimates, one of the largest increases was in the production of fenceposts, up from 3 to 10 million posts. Use of fuelwood has continued to decline; however, substantial markets have developed in some of the larger urban areas for fireplace wood. Almost three-fourths of all these miscellaneous products were cut from softwood species.

PLANT BYPRODUCTS ESTIMATED AT 119 MILLION CUBIC FEET

Primary wood-using plants in Georgia generated an estimated 169 million cubic feet of wood residues in 1971, excluding bark. Approximately 119 million cubic feet, or 70 percent, of these residues was converted into byproducts, such as pulp chips, particleboard, litter, and domestic fuelwood. The figure also includes a small amount of lumber produced from veneer cores. In North Georgia there is a very substantial demand for shavings and sawdust for litter associated with poultry production in the area. The byproduct figure excludes another 9 million cubic feet of wood residues used for industrial fuel. Approximately 41 million cubic feet of the wood residues generated were not used. Most of this unused material was in the form of sawdust and shavings.

ABOUT HALF OF THE BARK RESIDUE USED

In addition to the wood residues generated, more than 2.6 million tons of bark residue were generated in 1971. About half of this bark was used for industrial fuel with relatively small quantities used for mulch and fiber products. An estimated 48 percent of the bark residue was either burned as waste or left in the woods, piled or dumped. More than 80 percent of the bark residue generated in Georgia is from softwood species, primarily southern yellow pines. Although there is growing interest in the development of uses of bark, its value as an industrial fuel will likely be enhanced by the shortages and higher prices of conventional energy sources.

ALMOST ONE-FOURTH OF REMOVALS NOT USED FOR PRODUCTS

Of the 813 million cubic feet of roundwood products harvested from Georgia's forests during 1971, more than 765 million cubic feet, or 94 percent, came from growing-stock trees 5.0 inches d.b.h. and larger cut from commercial forest land. An additional 252 million cubic feet of growing stock was removed from the inventory but was not used for products. The removals of all growing stock, therefore, totaled 1,018 million cubic feet. This means that almost 25 percent of the merchantable volume removed from the inventory was either left in the woods as logging residue or was removed by land clearing, urban development, and other land-use changes where the timber was not used.

Logging residues totaled 118 million cubic feet and included the unused, merchantable portions of trees cut or destroyed in the process of harvesting timber. As might be expected, the level of utilization was somewhat better in the harvesting of softwood products than in the harvesting of hardwood products. For example, 84 percent of the total product harvest from growing-stock trees came from softwood species, but less than 62 percent of the logging residue was softwood.

Other removals totaled 134 million cubic feet and included growing-stock trees cut or destroyed in land clearing or development activities; girdled, poisoned, or removed in cultural activities; as well as trees left standing but removed from the commercial forest base. Here again, the proportionate toll was somewhat greater for hardwood than for softwood. For example, hardwoods comprise less than 42 percent of the growing-stock inventory, but 51 percent of these other removals was hardwood.



Timber Supply Outlook

With a 29-percent increase in inventory volume between 1961 and 1972 and annual growth exceeding removals by 55 percent, the timber supply outlook is relatively bright in Georgia when compared with that in many other parts of the country. The State, other public agencies, forest industries, and other private land-owners have invested substantial sums of money and energies in tree planting, better forest protection, improved timber culture and utilization, and other forestry endeavors to bring this situation about. The task of maintaining an ample supply of timber to meet demands is a continuous job, however, requiring long-range planning that involves a host of factors. Deficiencies persist within the favorable overall supply picture and are evidenced by the present concern and debate over timber supplies, demands, and prices. Statistics showing a build-up in timber inventory probably provide little consolation to the consumers of forest products who have experienced the shortages and price instability of recent months.

This appraisal of the timber supply outlook focuses on the amount of timber prospectively available from Georgia's forests over the next three decades based on specified assumptions. Timber is a renewable and expandable resource.

Over time, the supply can be increased within the limitations established by the growth capacities of those lands available for production. Response to timber production efforts, however, is slow relative to other crops. For example, the prospectively available supply of timber for the next decade or longer is fairly well determined by actions already taken.

With more than 90 percent of Georgia's timberland in private ownerships, the amount of timber harvested each year is largely determined by the unregulated forces of supply and demand. Only a small part of the annual harvest comes from publicly owned forests where the allowable cut is regulated through policy. Nevertheless, the basic concept of sustained yield, accepted and prac-

ticed in sound forest management, suggests that the net annual growth should establish allowable cut over the long run. Any prolonged breach of this concept will ultimately reduce timber supplies. Current and prospective growth, therefore, can serve as a guide for wood procurement activities.

In 1971, net annual growth totaled 1,577 million cubic feet and included 5,243 million board feet of sawtimber. For the same year, removals totaled 1,018 million cubic feet and included 3,706 million board feet of sawtimber. With the recent upsurge in the demand for softwood lumber and plywood and the prospective increases anticipated in the demands for other timber products, the question arises as to the extent that annual cut could be raised and sustained over time. Two separate projections were made in an attempt to answer this question.

PROSPECTIVELY, CUT CAN INCREASE BY 70 PERCENT

The first projection was for 30 years and was intended to establish a realistic measure of available cut based on a continuation of recent trends in forest area and the current level of timber cultural activity. The results of this projection are shown in table 28 and indicate a prospective available cut of 1,733 million cubic feet annually by year 2001. This is 70 percent greater than the volume of removals determined for 1971. The projection also allows for a further buildup in the inventory from 25.3 to 32.5 billion cubic feet. The prospective available cut of sawtimber increases from 3,706 to 6,370 million board feet over the same period.

Several basic assumptions were involved in this projection. The primary control was an assumption that the current margin between growth and removals will gradually diminish until growth and removals are in balance by year 2001. Area of commercial forest land was assumed to continue to decline at the rate of 50,000 acres each year. This is very near the average rate of real change which occurred between 1961 and 1972.

The 1971 growth rates were gradually reduced by 10 percent in anticipation of overstocked conditions developing in many of the unmanaged stands, and to compensate somewhat for the fact that the 1972 survey reflects a rate of ingrowth not likely to be sustained. The 1971 mortality rates were applied throughout the projection.

Separate projections were made for softwoods and hardwoods (fig. 8). Under the assumptions used, the results indicate that softwoods will provide two-thirds of the prospective increase in available cut of total growing stock and 80 percent of the prospective increase in available sawtimber. Considerably more effort has gone into the regeneration and management of pine than has gone into hardwood management.

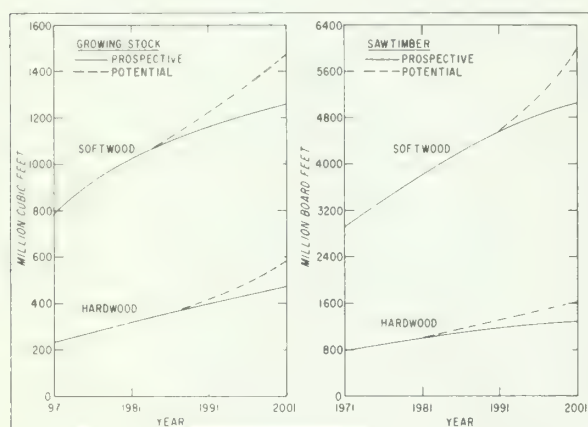


Figure 8. — Prospective and potential available cut Georgia, 1971-2001.

POTENTIAL AVAILABLE CUT IS DOUBLE THE 1971 LEVEL

The second projection was also for 30 years and was intended to establish a realistic measure of the maximum level of available cut which might be reached and sustained through accelerated timber management. Results from this projection indicate a potential available cut of 2,045 million cubic feet by year 2001, or about double the amount of removals in 1971. In this projection, the potential available cut of sawtimber climbed to 7,586 million board feet (fig. 8).

These estimates of potential available cut reflect the inherent capacity of those forest lands expected to be available for timber production when fully stocked. The same assumption was made with regard to the decline in commercial forest area as was made in the prospective projection. Management goals were expressed in terms

of basal area per acre and a stand-structure quotient for both softwoods and hardwoods. The goals selected for projection control would allow average stand densities of trees 5.0 inches d.b.h. and larger to increase to 85 square feet per acre, and inventory volume to increase to 1,480 cubic feet per acre. The stand-structure quotient is the quotient of the number of trees in any 2-inch diameter class divided by the number in the next larger class. This value is useful in describing the diameter distributions of trees within the stand. The quotients developed for Georgia's potential stand were 1.7 for softwoods and 1.8 for hardwoods, both of which call for more trees in the larger diameter classes. Finally, it was assumed that 1971 mortality rates could gradually be reduced by one-half over the next 30 years through improved protection and management.

Opportunities do exist for expanding the inherent growth capacity described for Georgia's forest lands. Some of the more promising opportunities center around site improvement, forest fertilization, and the further development of genetically superior trees. Some progress has already been made in each of these areas; however, no estimate of the potential gains which might develop from these activities is included in this analysis.

MORE CUT TO COME FROM PLANTATIONS

Over the 30-year period covered by this projection, an increasing share of the cut will come from the thinning and harvesting of pine plantations. Conceivably, a third or more of the pine cut in Georgia could be coming from plantations by 1985. About 3 million acres had been planted or artificially seeded in the State as of June 30, 1971, according to reports published by the Forest Service, USDA (table IV). During the late fifties, almost 700,000 acres were planted in Georgia under the Conservation Reserve Soil-Bank Program. Although the rate of tree planting dropped off sharply after the expiration of this program, planting has continued at an average annual rate of 110,000 acres. Since the end of the Soil-Bank Program, about two-thirds of the tree planting has occurred on lands owned by forest industry, mainly pulp and paper firms.

Slash pine and loblolly pine have been the preferred species for planting, and in terms of acres planted, the proportions have been about 3 to 1 in favor of slash pine. In fact, the Survey found that about two out of every five slash pine trees 1.0 inch d.b.h. and larger in the inventory have been planted.

Table IV. — Acres of forest planting,¹ by ownership class, Georgia, 1961-1971

Fiscal year	Ownership class				All owner- ships	Accumu- lative total
	National Forest	Other public	Forest industry	Other private		
----- Acres -----						
1961	3,990	2,382	96,568	100,527	203,467	² 1,698,911
1962	5,411	1,638	20,649	41,998	69,696	1,902,378
1963	4,476	2,761	78,477	43,340	129,054	1,972,074
1964	3,202	2,443	74,697	34,192	114,534	2,101,128
1965	2,932	3,703	70,085	29,888	106,608	2,215,662
1966	2,011	4,674	78,628	29,147	114,460	2,322,270
1967	1,595	2,709	86,647	44,298	135,249	2,436,730
1968	2,288	4,236	88,567	31,247	126,338	2,571,979
1969	1,785	4,173	73,622	26,539	106,119	2,698,317
1970	2,302	4,123	63,344	16,129	85,898	2,804,436
1971	3,228	4,412	73,757	21,420	102,817	2,890,334

¹Includes acres of planting by direct seeding. Source: U. S. Department of Agriculture, Forest Service, *Forest and Wind-barrier Planting and Seeding in the United States*.

²Accumulative total prior to FY 1961.

Some of the advantages of plantation management over natural stands are obvious and certainly outweigh the few subtle shortcomings associated with man-made forests. Plantations enable the land manager to exercise greater control over species composition and spacing and promise greater yields over shorter periods of time. The trees are more uniform in size and merchantable length, which can be a real advantage at time of harvest. Plantations also open up the opportunities afforded by genetic improvement, site preparation, and fertilization. Generally, however, the high initial costs of tree plantations dictate the use of short rotations. As a result, most of the pine plantations in Georgia will probably be harvested within 30 years of their establishment. As greater reliance is placed on these plantations as a source for timber, the wood industries will be manufacturing their products from a somewhat different kind of tree than they have been accustomed to using. The average tree will probably be younger and faster grown.

MOST PLANTATIONS ESTABLISHED IN SOUTHERN GEORGIA

The origin of each stand was recorded for each forest sample location to provide another estimate of number of acres planted, as well as information on the distribution of the plantations (table V). These classifications indicated that tree planting or seeding has occurred on about 3.2 million acres, which is reasonably consistent with the estimates in table IV, compiled from estimates of numbers of trees shipped from the nurseries. The findings also show that more than 62 percent of the plantations have been established in the two coastal Survey Units.

Whether the planting occurred prior to or since the previous Forest Survey was also determined. Here, the findings show that almost 2 million acres, or 61 percent, of the planting occurred since 1960. A substantial number of the older plantations are in the piedmont sections and were planted under the Conservation Reserve Soil-Bank Program.

QUALITY OF TIMBER LIMITS UTILIZATION

It is important in this analysis of the timber supply outlook that some assessment be made of the quality of the current and prospective timber supplies. In the past, many practices and factors contributed to a rather general deterioration in timber quality. Harvesting practices commonly resulted in repeated high grading of stands, and boundary sales to some specified minimum tree size provided little control over the residual conditions. In reality, the harvesting practice was often a detriment to, rather than a part of, the regeneration process. Rough and rotten trees and certain species were left in quantities which seriously impeded regeneration. Such residual conditions also fostered wildlife, disease, insects, and other damaging agents.

Improper harvesting practices still persist but to a lesser extent. More of the forest lands have been brought under sound management, protection and utilization have been improved, and professional silvicultural advice is readily available to most forest owners when they are ready to harvest and regenerate their stands. Further progress in each of these areas will lead to substantial improvement in the overall quality of timber available for the wide range of products produced from the forests.

The quality of the current inventory still reflects much of this past mismanagement, and one of the most pressing tasks confronting forestry today is that of correcting the conditions created by past mistakes. Small size and inferior quality limit utilization and reduce the supply of timber usable for saw logs, veneer logs, poles, and piling. A relatively small portion of the 1972 timber inventory in Georgia meets the size and quality requirements for these valuable products. First of all, of the 28.0 billion cubic feet in all live trees 5.0 inches d.b.h. and larger, almost 2.7 billion cubic feet, or 9 percent, is in trees which do not qualify as growing stock because of species, roughness, poor form, or internal rot. Another 9.5 billion cubic feet, or 34 percent, is in trees not yet large enough for sawtimber. When another 6 percent is deducted for volume in the upper-stem portion of sawtimber trees, only 14.1 billion cubic feet, or about half of the original total remains. Of this amount, only 5.6 billion cubic feet are in pine

Table V. — Area of commercial forest land, by stand origin and Survey Unit, Georgia, 1972

Stand origin	State		Survey Unit									
			Southeast		Southwest		Central		North Central		North	
	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>	<i>M acres</i>	<i>Percent</i>
Natural stands with no evidence of artificial regeneration	21,590.6	86.9	5,826.8	78.3	2,477.2	85.9	6,453.5	88.1	3,741.7	93.6	3,091.4	96.8
Stands originating wholly or in part from artificial regeneration since 1960	1,974.7	8.0	1,111.8	14.9	251.3	8.7	416.3	5.7	125.0	3.1	70.3	2.2
Stands originating wholly or in part from artificial regeneration prior to 1960	1,273.7	5.1	502.0	6.8	156.3	5.4	452.1	6.2	132.5	3.3	30.8	1.0
All stands	24,839.0	100.0	7,440.6	100.0	2,884.8	100.0	7,321.9	100.0	3,999.2	100.0	3,192.5	100.0

trees of grade 1 and 2 quality, or in other species that contain grade 1 and 2 logs.

SEVERAL FACTORS LIMIT TIMBER AVAILABILITY

How much of the timber inventory that is available to prospective buyers at a particular point in time is a critical question. Undoubtedly, at some price level forest industries could purchase more timber than it would be wise to cut or the resource could sustain. The objective, however, is to achieve and maintain a balance between timber supplies and demand which will yield a flow of products at reasonable prices that the consumers can afford.

Over the long run, it is probably reasonable to assume that all timber produced on commercial forest land will eventually be harvested. At any time, however, an undetermined quantity of the inventory is not available for several reasons. Many stands and forest conditions do not offer any logging chance because of low volume per acre, small size, inferior quality, poor accessibility, captive holdings, or the owners' unwillingness to sell.

For example, the Forest Survey statistics for Georgia indicate that volume per acre on 11.2 million acres averaged less than 1,500 board feet in 1972. Another 4.5 million acres, with 1,500 board feet or more per acre, are located in deep swamps, bays, along stream margins, and in rugged mountainous terrain where accessibility and logging conditions are seasonal or difficult. Still another 1.2 million acres are owned by forest industry, and their timber would normally not be available to competing industry moving into the State. Finally, in the absence of any information on the number of acres held by private, nonindustrial owners who are unwilling to sell, one might assume that the Forest Survey estimate of 0.8 million acres in mature pine and oak-pine stands provides a crude measure. This deductive process, therefore, suggests that only 7.1 million acres, or less than 30 percent of the commercial forest land, offered an unencumbered logging chance to new lumber and plywood industry as of 1972. If the same deductive process is used with a minimum volume of 500 cubic feet per acre, the results indicate that 9.6 million acres, or almost 40 percent of the commercial forest, offered an unencumbered logging chance to new pulp or fiber industry.



Management Opportunities

In recent years more and more attention has been focused on studies of opportunities for increasing future timber supplies. As the demand for timber products continues to increase in the face of a diminishing forest base, efforts to augment future timber supplies will need to be concentrated in those areas and on those opportunities which promise the greatest return from the limited funds and resources available. As the Georgia statistics clearly indicate, some further gains are possible through improved protection and closer utilization of the existing supplies. Over the long run, however, the greatest opportunities appear to be in the area of acceleration and intensification of timber cultural practices. As discussed in the previous chapter, the growth potential of Georgia's forests is at least 30 percent greater than that achieved up to now, excluding possible gains from site improvement, fertilization, and the further development of genetically superior trees.

RECENT TRENDS IN FORESTRY ACTIVITIES

Before goals or program objectives can be formulated for accelerating and intensifying timber cultural practices, information is needed which will describe and quantify what is already being done. After all, the existing forest conditions were created largely by past forestry practices and natural disturbances. In conjunction with the Georgia survey, a classification was recorded at each sample location identifying the primary treatment or disturbance which had occurred during the 11-year remeasurement period. A summary of this treatment and disturbance information by broad management and ownership classes provides insight of recent trends in forestry activities (table VI).

About half of the 24.8 million acres classified as commercial forest land were treated or disturbed between 1961 and 1972. More than 4.4 million acres were harvested, and thinning or other intermediate cutting occurred on another 4.6 million acres. When the acres of land clearing and other forest diversions are added, the figures indicate that approximately 1 million acres

were cut into annually over the period. An estimated 2.4 million acres which were harvested had been regenerated, along with another 0.8 million acres where harvesting was not involved. In addition to the stands which experienced some form of cutting or were artificially regenerated, 2.8 million acres experienced other kinds of treatment or disturbance. These other treatments included prescribed burning, grazing, turpentine, draining, and site preparation. The natural disturbances recognized included wildfire, insect infestations, disease and animal damage, and wind and ice storms. The relatively large percentage of the pine plantations in the natural disturbance category is attributed to their apparently high susceptibility to fusiform rust.

HALF OF THE STANDS WERE UNDISTURBED

Some 12.2 million acres, or almost half of the land classified as commercial forest, did not show any evidence of treatment or major disturbance over the 11-year remeasurement period. Significant differences were observed, however, in the occurrence of treatment or disturbance among the broad management and ownership classes and, therefore, among the different parts of the State. For example, only about 41 percent of the stands occupied with pine forest types in 1972 had gone untreated or undisturbed, compared to 58 percent for the stands occupied with hardwood types. An estimated 62 percent of the bottomland hardwood stands was untreated or undisturbed. By broad ownership class, the highest rate of treatment and disturbance was observed on forest industry lands and the lowest rate on public lands. By Forest Survey Unit, the highest rate of treatment and disturbance was found in Southeast Georgia and the lowest rate in North Georgia.

ONE-THIRD OF STANDS IN GOOD CONDITION

Another classification was recorded at each sample location to break the commercial forest into condition

Table VI. — Area of commercial forest land, by broad management, ownership, and past treatment or disturbance classes, Georgia, 1972

Broad management and ownership classes ¹	Total area	Primary treatment or disturbance between 1961 and 1972							
		Harvesting with artificial regeneration	Harvesting with natural regeneration	Other harvesting	Intermediate cutting	Artificial planting	Other treatment ²	Natural disturbance	None
----- Thousand acres -----									
Nonstocked forest:									
Public	33.4	—	—	7.8	—	—	1.8	3.2	20.6
Forest industry	163.5	—	—	109.3	3.9	—	20.5	10.7	19.1
Other private	461.9	—	—	130.2	32.7	—	32.7	24.7	241.6
Total	658.8	—	—	247.3	36.6	—	55.0	38.6	281.3
Pine plantations:									
Public	50.4	21.1	—	—	7.3	1.8	0.9	7.2	12.1
Forestry industry	1,660.7	745.7	—	—	58.2	362.0	70.7	120.9	303.2
Other private	1,511.2	206.0	—	—	200.2	402.4	67.9	251.0	383.7
Total	3,222.3	972.8	—	—	265.7	766.2	139.5	379.1	699.0
Natural pine stands:									
Public	600.6	—	31.4	7.5	189.2	—	36.6	26.4	309.5
Forestry industry	1,625.4	—	140.3	66.5	387.4	—	197.0	96.6	737.6
Other private	7,149.4	—	560.5	297.7	1,907.5	—	710.1	258.8	3,414.8
Total	9,375.4	—	732.2	371.7	2,484.1	—	943.7	381.8	4,461.9
Oak-pine stands:									
Public	252.6	—	26.0	12.6	66.5	—	1.4	5.5	140.6
Forest industry	571.6	—	56.6	60.0	63.8	—	17.1	10.6	363.5
Other private	3,025.5	—	212.6	355.3	588.5	—	145.6	89.2	1,634.3
Total	3,849.7	—	295.2	427.9	718.8	—	164.1	105.3	2,138.4
Upland hardwood stands:									
Public	552.7	—	10.4	25.2	43.3	—	21.5	10.8	441.5
Forestry industry	567.5	—	49.9	78.5	66.7	—	34.5	11.8	326.1
Other private	3,532.1	—	203.5	441.4	638.8	—	186.3	114.5	1,947.6
Total	4,652.3	—	263.8	545.1	748.8	—	242.3	137.1	2,715.2
Bottomland hardwood stand:									
Public	81.8	—	13.6	10.1	6.7	—	—	8.4	43.0
Forest industry	678.2	—	28.1	71.2	74.7	—	8.1	17.1	479.0
Other private	2,320.5	—	126.3	335.9	262.2	—	79.6	130.0	1,386.5
Total	3,080.5	—	168.0	417.2	343.6	—	87.7	155.5	1,908.5
All classes:									
Public	1,571.5	21.1	81.4	63.2	313.0	1.8	62.2	61.5	967.3
Forest industry	5,266.9	745.7	274.9	385.5	654.7	362.0	347.9	267.7	2,228.5
Other private	18,000.6	206.0	1,102.9	1,560.5	3,629.9	402.4	1,222.2	868.2	9,008.5
Total	24,839.0	972.8	1,459.2	2,009.2	4,597.6	766.2	1,632.3	1,197.4	12,204.3

¹Forest industry includes lands under long-term lease.

²Includes prescribed burning, grazing, turpentineing, draining, and site preparation.

classes. A summary of this information, again by broad management and ownership classes, provides a measure of some of the various treatment opportunities in terms of relative number of acres (table VII).

Based on this classification, one out of every three acres of commercial forest in Georgia appeared to be occupied by immature stands, adequately stocked with trees of desirable quality, relatively free from competition, and located on manageable sites. In other words, conditions found on 8.5 million acres seemed favorable for the achievement of a sufficient growth rate without any major treatment over the next several years. Although many of these stands were still in the seedling

and sapling stages of development, volume per acre averaged about 800 cubic feet and the rate of net annual growth averaged 7.5 percent. About 72 percent of these stands judged to be in good condition was pine, and the remaining 28 percent hardwood. By broad ownership class, 5 percent was public, 27 percent forest industry, and 68 percent other private.

HARVEST OPPORTUNITY ON 2.3 MILLION ACRES

Almost 2.3 million acres were classified as mature stands with a harvest opportunity or merchantable stands damaged to the extent that salvage would be considered.

Table VII. — Area of idle cropland and commercial forest land, by broad management, ownership, and treatment opportunity classes, Georgia, 1972

Broad management and ownership classes ¹	Total area	Broad treatment opportunity classes				
		Stands in good condition	Harvest or salvage	Thinning or other stand improvement	Conversion or regeneration	Adverse sites or conditions
----- Thousand acres -----						
Idle cropland:						
Public	—	—	—	—	—	—
Forest industry	—	—	—	—	—	—
Other private	742.7	—	—	—	742.7	—
Total	742.7	—	—	—	742.7	—
Nonstocked forest:						
Public	33.4	—	—	—	30.2	3.2
Forest industry	163.5	—	—	—	149.4	14.1
Other private	461.9	—	—	—	403.3	58.6
Total	658.8	—	—	—	582.9	75.9
Pine plantations:						
Public	50.4	47.0	—	3.4	—	—
Forest industry	1,660.7	1,268.9	27.6	268.8	83.5	11.9
Other private	1,511.2	774.0	61.2	548.5	113.5	14.0
Total	3,222.3	2,089.9	88.8	820.7	197.0	25.9
Natural pine stands:						
Public	600.6	229.8	162.7	115.5	86.6	6.0
Forest industry	1,625.4	743.1	156.4	490.1	218.0	17.8
Other private	7,149.4	3,100.4	617.2	2,235.3	1,099.9	96.6
Total	9,375.4	4,073.3	936.3	2,840.9	1,404.5	120.4
Oak-pine stands:						
Public	252.6	71.4	53.9	42.5	62.8	22.0
Forest industry	571.6	99.6	61.6	122.7	242.4	45.3
Other private	3,025.5	895.9	212.5	769.3	1,034.0	113.8
Total	3,849.7	1,066.9	328.0	934.5	1,339.2	181.1
Upland hardwood stands:						
Public	552.7	85.4	54.3	167.9	61.3	183.8
Forest industry	567.5	130.3	27.3	153.1	249.7	7.1
Other private	3,532.1	786.2	314.5	829.9	1,451.9	149.6
Total	4,652.3	1,001.9	396.1	1,150.9	1,762.9	340.5
Bottomland hardwood stands:						
Public	81.8	8.3	6.1	17.5	36.1	13.8
Forest industry	678.2	61.8	135.3	175.0	125.6	180.5
Other private	2,320.5	230.4	364.2	626.7	639.7	459.5
Total	3,080.5	300.5	505.6	819.2	801.4	653.8
All classes:						
Public	1,571.5	441.9	277.0	346.8	277.0	228.8
Forest industry	5,266.9	2,303.7	408.2	1,209.7	1,068.6	276.7
Other private	18,743.3	5,786.9	1,569.6	5,009.7	5,485.0	892.1
Total	25,581.7	8,532.5	2,254.8	6,566.2	6,830.6	1,397.6

¹Forest industry includes lands under long-term lease.

Across this entire classification, volume per acre averaged about 2,000 cubic feet, but the rate of net annual growth averaged only 4.1 percent. Mortality was high in these stands and was reducing the gross growth by almost 13 percent. About 45 percent of these stands was pine and 55 percent hardwood. By broad ownership class, 12 percent was public, 18 percent forest industry, and 70 percent other private. Although some of these acres might not be available because of public policy and owner attitude, the statistics suggest that harvesting and prompt regeneration of these stands over the next

several years are the most promising opportunities for increasing future timber supplies.

INTERMEDIATE TREATMENT OPPORTUNITY ON 6.6 MILLION ACRES

Almost 6.6 million acres were classified as immature stands either overstocked or receiving competition to the extent that growth would likely be impaired unless thinning, cleaning, or other stand improvement action is taken. Admittedly, a wide range of conditions is included in this classification and the land managers are

confronted with a number of alternative treatment possibilities. In some of these stands, it might be more desirable to go ahead and convert or regenerate. In other cases, the potential growth response might not justify the cost of additional intermediate investment in timber stand improvement and the decision might be to carry the existing stands on to harvest. In other words, from the biological or silvicultural standpoint, the figure of 6.6 million acres is probably a realistic measure of the intermediate treatment opportunity; however, when the economic aspect is added, this measure might be substantially reduced. Across this entire classification, volume per acre averaged about 1,400 cubic feet, and the rate of net annual growth averaged about 6.4 percent. Some 56 percent of these stands was pine and 44 percent hardwood. By broad ownership class, 5 percent was public, 19 percent forest industry, and 76 percent other private.

MANAGEABLE STAND ABSENT ON 6.1 MILLION ACRES

Some 6.1 million acres of commercial forest land were found to be so poorly stocked that manageable stands did not exist. Many of these areas had been recently cutover without regeneration, and others were dominated by scrub oaks, brush, damaged or poor quality trees, and the remnants of former stands. In all instances, it appeared that the existing conditions were unlikely to improve unless actions were taken to convert or regenerate these acres into productive stands. Although volume per acre averaged about 500 cubic feet and the rate of net annual growth averaged 5.8 percent, the conditions on most of these areas ruled out any logging chance. Almost 10 percent of the area in this category was classified as nonstocked, another 26 percent was poorly stocked with pine, and the remaining 64 percent was poorly stocked with hardwoods. By broad ownership class, about 4 percent was public, 18 percent forest industry, and 78 percent other private.

For the purpose of this analysis, another 0.7 million acres of idle cropland were added in table VII. Some of these acres will return to agricultural use and others will be developed for other uses; however, their conversion to forest represents about the only opportunity for expanding the timber base in Georgia. When all of these acres are added to the poorly stocked conditions already described, the conversion and regeneration opportunities exceed 6.8 million acres.

Although the task of treating this many acres and bringing them into full production would require tremendous investments, the potential gains in timber supplies

which could be expected dwarf all the other opportunities available. Costs and prospective returns per acre would vary, depending upon condition, site, and response to treatment; however, it is possible to estimate the overall costs and returns which would be involved. For example, if one assumed that the 6.1 million acres of poorly stocked forest land could be regenerated at an average cost of \$45 per acre and that the 0.7 million acres of idle land could be planted at an average cost of \$20 per acre, the overall costs would total \$289 million. It would be reasonable to assume that the prospective annual growth rates on the forest acres could be increased from 30 to 85 cubic feet per acre, and from zero to 85 cubic feet on the idle lands. By the end of a 30-year rotation, timber supplies from these 6.8 million acres could be increased by 11.9 billion cubic feet. If we assume an average stumpage value of only 15 cents per cubic foot, the added timber supplies would be worth at least \$1,790 million.

With the cost and conservative return estimates used in these examples, the investments made on the poorly stocked forest lands would return about 5.8 percent annually on the average with the compound interest formula. On the idle lands, the investments would promise a 10.3-percent rate of return. Although these prospective rates of return might seem exceedingly low to the speculator, they are probably competitive with the alternative investment opportunities available to the average landowner. Of course, to the extent that consumers are willing to pay higher prices for timber-based products, the forestry investments become more attractive. For example, if we assumed an average stumpage value of 25 cents per cubic foot in light of recent increases in stumpage prices, the prospective rates of return on the investments described jump to 7.7 and 12.2 percent, respectively. Naturally, the more desirable approaches to improving forestry investment opportunities point toward reducing treatment costs, increasing yields per acre, and shortening rotations. This is the reason for the expanding emphasis on tree improvement, forest fertilization, and the development of better forestry equipment and technology through research.

OPPORTUNITIES LIMITED ON 1.4 MILLION ACRES

Finally, the management opportunity classifications applied in the Georgia survey indicated that adverse physical features severely limit the opportunities for intensifying timber cultural practices on at least 1.4 million acres of commercial forest land. Factors taken into consideration in making this determination included

topography and slope, water conditions and trafficability, accessibility, tract size, and site productivity, among others. With these factors classified at each sample location, a relative scale ranging from 1 to 9, from the best to the poorest opportunities, was used as the criteria for this screen. The 1.4 million acres screened out in table VII fell in a zone between 7 and 9 on the scale and, in addition, had received no treatment during the remeasurement period. The logic applied was that the limited funds and resources available for the acceleration and intensification of timber culture would not be expended on these adverse or marginal sites so long as more promising opportunities were available. By broad ownership class, 16 percent of these lands was public, 20 percent forest industry, and 64 percent other private.

Undoubtedly, the figure of 1.4 million acres is a very conservative estimate of the forest area in Georgia which does not lend itself to intensive forestry practices. Although this figure includes most of the deep swamps, bays, mountain tops, and steep slopes, access to another 4 million acres along the stream margins is seasonal, to say the least. Still, these are some of the most productive sites, based upon their inherent capacity to grow timber. Many of the poorer sites do have the advantage of being highly accessible. Each landowner or manager who is willing to invest in intensive forestry practices must develop his own criteria for ranking the opportunities and alternative courses of action available to him. Overall estimates of the various forest conditions and management opportunities as presented in this analysis are provided as guidelines and input for the broader program and policy decisions.



Appendix

SURVEY PROCEDURE

The basic steps of the procedure used in the fourth Forest Survey of Georgia were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 126,222 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 9,443 of these 16-point clusters was checked on the ground, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provided a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.

2. Estimates of timber volume and forest classifications were based on measurements recorded at 6,086 ground sample locations systematically distributed within the commercial forest land. A 10-point cluster of plots, measured with a basal area factor of 37.5 square feet per acre, was systematically spaced on an acre at each of these sample locations. Trees less than 5.0 inches d.b.h. were tallied on fixed-radius plots around the point centers.

3. Equations prepared from detailed measurements collected on trees tallied at 281 sample locations were used to compute the volumes of individual tally trees of the major species. Similar measurements taken throughout the Southeast were used to supplement the Georgia data in the computation of volumes of the minor species. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements on standing trees required to construct the volume equations. The same subsample of plots used for the tree-volume study also served as a quality control of field measurements. Felled trees were measured at 99 active cutting operations to provide utilization factors for product and species groups, and to supplement the standing tree-volume study.

4. Estimates of growth, removals, and mortality were determined from the remeasurement of 6,202 permanent sample plots which were established in the third survey. A 1971 survey of timber products output, conducted by the Georgia Forestry Commission, along with the annual pulpwood production study in the South, provided additional information for breakdowns of removals by product.

5. Ownership information was collected from local contacts, correspondence, and public records. In those counties where the sample missed a particular ownership class, temporary samples were added and measured to describe the forest conditions within the ownership class.

6. A test study of procedures for measuring past treat-

ments and disturbances, better describing existing forest conditions, and determining future silvicultural opportunities for increasing timber growth was conducted in conjunction with the Georgia survey. Special classifications were recorded at each of the 6,086 ground sample locations which fell within the commercial forest. Those sample locations which straddled two or more conditions were identified to facilitate the analysis.

7. Throughout the State, an attempt was made to improve the breakdowns of land and water area provided by the Bureau of the Census. It is believed that this effort strengthened the individual county statistics generated by the Forest Survey.

8. All field data were sent to Asheville for editing and were punched in cards and stored on magnetic tape for computer processing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

9. As each of the five Forest Survey Units in Georgia was completed, special summaries of the information were added to a master data bank of Forest Survey statistics maintained for the entire Southeast in Asheville. A Forest Information Retrieval (FIR) program is available for compiling the information for any area of interest as a customized service.

ACCURACY OF THE SURVEY

Statistical analysis of the data indicates a sampling error of ± 0.21 percent for the estimate of total commercial forest area, 1.04 percent for total cubic volume, 1.09 percent for total cubic-volume growth, and 2.69 percent for total cubic-foot removals. As the totals are broken down by forest type, species, tree diameter, and other subdivisions, the sampling error increases. The order of this increase is suggested in the following tabulation, which shows the sampling error to which the estimates are liable, in terms of one standard error, or two chances out of three.

Sampling error ¹	Commercial forest area	Volume of growing stock		
		Inventory	Net growth	Removals
Percent	Thousand acres	- - - Million cubic feet - - -		
1	1,095.4	—	—	—
2	273.8	6,849.8	468.5	—
3	121.7	3,044.4	208.2	818.3
4	68.5	1,712.5	117.1	460.3
5	43.8	1,096.0	75.0	294.6
10	11.0	274.0	18.7	73.6
15	4.9	121.8	8.3	32.7
20	2.7	68.5	4.7	18.4
25	1.8	43.8	3.0	11.8

¹By random-sampling formula.

DEFINITIONS OF TERMS

Acceptable trees.—Growing-stock trees of commercial species that meet specified standards of size and quality, but not qualifying as desirable trees.

Available cut.—The volume of timber that would be available for cutting on commercial forest land during a given period under specified assumptions concerning growth, cut, mortality, and forest management practices.

Basal area.—The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed as square feet of basal area per acre.

Commercial forest land.—Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization.

Commercial species.—Tree species suitable for industrial wood products.

Cropland.—Land under cultivation within the past 24 months, including orchards and land in soil-improving crops, but excluding land cultivated in developing improved pasture. Also includes idle farmland.

Desirable trees.—Growing-stock trees of commercial species having no serious defects in quality that limit present or prospective use for timber products, of relatively high vigor, and containing no pathogens that may result in death or serious deterioration before rotation age.

Diameter class.—A classification of trees based on diameter outside bark (d.o.b.), measured at breast height (4½ feet above the ground). D.b.h. is the common abbreviation for "diameter at breast height." Two-inch diameter classes are commonly used in the Forest Survey, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.00 through 6.99 inches d.b.h., inclusive.

Farm.—Either a place operated as a unit of 10 or more acres from which the sale of agricultural products totaled \$50 or more annually, or a place operated as a unit of less than 10 acres from which the sale of agricultural products for the year amounted to at least \$250.

Farm operator.—A person who operates a farm, either doing the work himself or directly supervising the work.

Farmer-owned lands.—Lands owned by farm operators.

Forest industry lands.—Lands owned by companies or individuals operating wood-using plants.

Forest land.—Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type.—A classification of forest land based upon the species forming a plurality of live-tree stocking.

Longleaf-slash pine.—Forests in which longleaf or slash pine, singly or in combination, comprises a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine.—Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine.—Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which pines comprise 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory.—Forests in which upland oaks or hickory, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress.—Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprises a plurality of the stocking, except where pines comprise 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood.—Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Gross growth.—Annual increase in net volume of trees in the absence of cutting and mortality.

Growing-stock trees.—Live trees of commercial species qualifying as desirable or acceptable trees.

Growing-stock volume.—Net volume in cubic feet of growing-stock trees 5.0 inches d.b.h. and over from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. (Net volume in primary forks is included.)

Hardwoods.—Dicotyledonous trees, usually broad-leaved and deciduous.

Soft hardwoods.—Soft-textured hardwoods such as boxelder, red and silver maple, hackberry, loblolly-bay, sweetgum, yellow-poplar, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods.—Hard-textured hardwoods such as Florida maple, birch, hickory, dogwood, persimmon (forest grown), beech, ash, honeylocust, holly, black walnut, mulberry, and all commercial oaks.

Idle farmland.—Includes former croplands, orchards, improved pastures and farm sites not tended within the past 2 years, and presently less than 16.7 percent stocked with trees.

Improved pasture.—Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood.—All roundwood products except fuelwood.

Ingrowth.—The number or net volume of trees that grow large enough during a specified year to qualify as saplings, poletimber, or sawtimber.

Inhibiting vegetation.—Cover sufficiently dense to prevent the establishment of tree seedlings.

Land area.—The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than $\frac{1}{8}$ of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Log grade.—A classification of logs based on external characteristics as indicators of quality or value.

Logging residues.—The unused portions of trees cut or killed by logging.

Miscellaneous Federal lands.—Federal lands other than National Forests, lands administered by the Bureau of Land Management, and Indian lands.

Miscellaneous private lands—corporate.—Lands owned by private corporations other than forest industry.

Miscellaneous private lands—individual.—Privately owned lands other than forest industry, farmer-owned, or corporate lands.

Mortality.—Number or sound-wood volume of live trees dying from natural causes during a specified period.

National Forest land.—Federal lands which have been legally designated as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth.—The increase in volume for a specific year.

Net volume.—Gross volume of wood less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.—(a) Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and (b) productive-reserved forest land.

Noncommercial species.—Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial wood products.

Nonforest land.—Land that has never supported forests and land formerly forested where timber production is precluded by development for other uses.

Nonstocked land.—Commercial forest land less than 16.7 percent stocked with growing-stock trees.

Other Federal lands.—Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and other Federal agencies.

Other public lands.—Publicly owned lands other than National Forests.

Other removals.—The net volume of growing-stock trees removed from the inventory by cultural operations, such as timber stand improvement, land clearing, and other changes in land use that result in the removal of the trees from the commercial forest.

Overstocked areas.—Areas where growth of trees is significantly reduced by excessive numbers of trees.

Plant byproducts.—Wood products, such as pulp chips, obtained incidental to production of other manufactured products.

Plant residues.—Wood materials from manufacturing plants not utilized for some product.

Poletimber trees.—Growing-stock trees of commercial species at least 5.0 inches in d.b.h. but smaller than sawtimber size.

Productive-reserved forest land.—Forest land sufficiently productive to qualify as commercial forest land, but withdrawn from timber utilization through statute or administrative designation.

Quality class.—A classification of sawtimber volumes by log or tree grades.

Rangeland.—Land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Rotten trees.—Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross tree volume in sound material.

Rough trees.—(a) Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross tree volume in sound material; and (b) all live trees of noncommercial species.

Roundwood products.—Logs, bolts, or other round sections cut from trees for industrial or consumer uses.

Salvable dead trees.—Standing or down dead trees that are considered merchantable by Forest Survey standards.

Saplings.—Live trees 1.0 inch to 5.0 inches in diameter at breast height.

Saw log.—A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion.—That part of the bole of sawtimber trees between the stump and the saw-log top.

Saw-log top.—The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw-log top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber trees.—Live trees of commercial species containing at least a 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, and with at least one-third of the gross board-foot volume between the 1-foot stump and minimum saw-log top being sound. Softwoods must be at least 9.0 inches and hardwoods at least 11.0 inches in diameter at breast height.

Sawtimber volume.—Net volume of the saw-log portion of live sawtimber in board-foot International 1/4-inch rule.

Seedlings.—Live trees less than 1.0 inch in diameter at breast height that are expected to survive and develop.

Site class.—A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Class 1.—Sites capable of producing 165 or more cubic feet per acre annually.

Class 2.—Sites capable of producing 120 to 165 cubic feet per acre annually.

Class 3.—Sites capable of producing 85 to 120 cubic feet per acre annually.

Class 4.—Sites capable of producing 50 to 85 cubic feet per acre annually.

Class 5.—Sites incapable of producing 50 cubic feet per acre annually, but excluding unproductive sites.

Softwoods.—Coniferous trees, usually evergreen, having needles or scale-like leaves.

Pines.—Yellow pine species which include loblolly, longleaf, slash, pond, shortleaf, sand, and spruce pine.

Other softwoods.—Cypress, eastern redcedar, and whitecedar.

Stand-size class.—A classification of forest land based on the diameter class of growing-stock trees on the area.

Sawtimber stands.—Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking

in sawtimber and poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.—Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and seedlings.

State, county, and municipal lands.—Lands owned by States, counties, and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Stocking.—The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared to a minimum standard, depending on tree size, to fully utilize the growth potential of the land. (See table at end of definitions.)

Fully stocked.—100 percent or more stocking

Medium stocked.—60 to 100 percent stocking

Poorly stocked.—Less than 60 percent stocking

Survivor growth.—The increase in volume of growing-stock trees that survive cutting and mortality for a specified year.

Timber products.—Roundwood products and plant byproducts.

Timber removals.—The net volume of growing-stock trees removed from the inventory by harvesting; cultural operations, such as stand improvement; land clearing, or changes in land use.

Unproductive forest land.—Forest land incapable of producing 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions.

Upper-stem portion.—That part of the main stem or fork of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas.—Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; school yards; cemeteries; roads; railroads; airports; beaches; powerlines and other rights-of-way; or other nonforest land not included in any other specified land use class.

Stocking Standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking	Percent stocking assigned each tally tree ¹
Seedlings	600	—	5.0
2	560	—	5.4
4	460	—	6.5
6	340	67	5.8
8	240	84	4.8
10	155	85	4.3
12	115	90	4.0
14	90	96	3.8
16	72	101	3.7
18	60	106	3.5
20	51	111	3.5

¹Trees less than 5.0 inches d.b.h. were tallied on a 10-point cluster of circular, 1/300-acre plots at each sample location. Trees 5.0 inches d.b.h. and larger were tallied on a 10-point cluster of variable plots with a basal area factor of 37.5 at each sample location.

Overstocked—Over 130 percent

Fully stocked—100-130 percent

Medium stocked—60-99 percent

Poorly stocked—16.7-59 percent

Nonstocked—Less than 16.7 percent

CONVERSION FACTORS

Cubic feet of wood per average cord (excluding bark)

D.b.h.	Pine	Other softwoods	Hardwood
6	61.0	68.2	60.0
8	68.1	76.0	68.4
10	73.1	81.3	73.4
12	76.7	85.2	76.4
14	79.4	88.2	78.4
16	81.6	90.4	79.8
18	83.3	92.3	80.8
20	84.8	94.0	81.5
22	86.0	95.0	82.1
24+	87.7	98.1	83.1
Average	72.4	83.2	73.6

Rough cords per M cubic feet (without bark) =

$$a + b \left(\frac{1}{D.b.h.} \right) + c \left(\frac{1}{D.b.h.} \right)^2$$

Where

	Pine	Other softwoods	Hardwood
a =	10.01850	9.15960	11.68410
b =	34.42135	28.75793	3.74431
c =	22.73994	25.54418	157.39417

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Table 1. — Area by land classes, Georgia, 1972

Land class	Area Thousand Acres
Forest land:	
Commercial	24,839.0
Productive-reserved	383.7
Unproductive	30.2
Total	25,252.9
Nonforest land:	
Cropland	6,279.7
Pasture and range	2,825.7
Other ¹	3,021.4
Total	12,126.8
All land ²	37,379.7

¹Includes swampland, industrial and urban areas, other nonforest land, and 350,500 acres classed as water by Forest Survey standards but defined by Bureau of Census as land.

²From U. S. Bureau of the Census, Land and Water Area of the United States, 1960.

Table 2. — Area of commercial forest land, by ownership classes, Georgia, 1972

Ownership class	Area Thousand acres
National Forest	839.3
Other Federal:	
Bureau of Land Management	—
Indian	—
Miscellaneous Federal	604.4
Total other Federal	604.4
State	93.7
County and municipal	34.1
Forest industry ¹	4,318.2
Farmer-owned	8,410.1
Miscellaneous private:	
Individual	9,088.1
Corporate	1,451.1
Total miscellaneous private	10,539.2
All ownerships	24,839.0

¹Not including 948,700 acres of farmer-owned and miscellaneous private lands leased to forest industry.

Table 3. — Area of commercial forest land, by stand-size and ownership classes, Georgia, 1972

Stand-size class	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
Thousand acres					
Sawtimber	8,791.4	560.2	347.3	1,304.2	6,579.7
Poletimber	9,038.2	235.4	192.2	1,276.7	7,333.9
Sapling and seedling	6,350.6	43.7	159.3	1,598.9	4,548.7
Nonstocked	658.8	—	33.4	138.4	487.0
All classes	24,839.0	839.3	732.2	4,318.2	18,949.3

Table 4. — Area of commercial forest land, by stand-volume and ownership classes, Georgia, 1972

Stand volume per acre ¹	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
Thousand acres					
Less than 1,500 board feet	11,176.7	116.9	291.1	2,347.5	8,421.2
1,500 to 5,000 board feet	8,639.2	340.7	231.0	1,111.8	6,955.7
More than 5,000 board feet	5,023.1	381.7	210.1	858.9	3,572.4
All classes	24,839.0	839.3	732.2	4,318.2	18,949.3

¹International 1/4-inch rule.

Table 5. — Area of commercial forest land, by stocking classes based on selected stand components, Georgia, 1972

Stocking percentage	Stocking classified in terms of:					
	All live trees	Growing-stock trees			Rough and rotten trees	Inhibiting vegetation
		Total	Desirable	Acceptable		
<i>Thousand acres</i>						
160	7.9	4.8	—	—	—	—
150-159	148.2	45.1	—	13.9	—	—
140-149	346.8	137.4	16.5	36.9	—	—
130-139	1,187.3	431.1	17.0	84.0	—	—
120-129	3,005.8	1,037.0	43.2	289.9	4.1	—
110-119	4,362.9	1,949.3	86.4	464.9	15.8	—
100-109	4,442.3	2,844.0	229.9	838.1	27.4	—
90-99	3,642.2	3,585.3	442.2	1,035.6	50.5	7.1
80-89	2,471.5	3,521.6	764.1	1,335.6	100.5	30.5
70-79	1,767.1	3,181.8	1,298.6	1,709.0	159.8	49.1
60-69	1,220.1	2,642.2	1,920.6	2,000.5	335.6	74.0
50-59	881.8	2,014.3	2,371.2	2,379.1	711.3	112.2
40-49	514.6	1,234.2	2,716.6	2,688.4	1,371.8	265.4
30-39	352.3	909.5	3,124.7	3,008.9	2,204.0	505.2
20-29	211.8	553.6	2,880.9	3,073.4	3,746.7	816.0
10-19	137.6	373.3	2,920.0	2,797.1	5,811.9	1,825.2
Less than 10	138.8	374.5	6,007.1	3,083.7	10,299.6	21,154.3
Total	24,839.0	24,839.0	24,839.0	24,839.0	24,839.0	24,839.0

Table 6. — Area of commercial forest land, by ownership and stocking classes,¹ with percent occupancy by selected stand components, Georgia, 1972

Ownership and stocking class	Area	Stand components					
		Growing-stock trees			Rough and rotten trees	Inhibiting vegetation	Nonstocked
		Total	Desirable	Acceptable			
	<i>M acres</i>	<i>Percent of area</i>					
National Forest:							
Fully stocked stands	150.7	92.1	33.2	58.9	7.4	—	0.5
Medium stocked stands	465.1	72.3	20.8	51.5	25.0	0.5	2.2
Poorly stocked stands	223.5	46.5	8.5	38.0	45.7	1.4	6.4
All stands	839.3	70.2	20.4	49.8	26.4	0.6	2.8
Other public:							
Fully stocked stands	205.2	94.0	32.7	61.3	5.6	0.1	0.3
Medium stocked stands	305.3	75.6	36.9	38.7	12.1	4.4	7.9
Poorly stocked stands	221.7	38.9	21.8	17.1	26.4	10.6	24.1
All stands	732.2	74.7	32.1	42.6	12.7	4.1	8.5
Forest industry:							
Fully stocked stands	1,272.1	92.9	40.9	52.0	6.2	0.2	0.7
Medium stocked stands	2,199.7	75.7	43.0	32.7	12.6	3.6	8.1
Poorly stocked stands	846.4	36.6	22.1	14.5	19.6	13.3	30.5
All stands	4,318.2	74.4	38.6	35.8	11.7	4.2	9.7
Farmer & misc. private:							
Fully stocked stands	4,820.4	92.4	37.0	55.4	6.7	0.3	0.6
Medium stocked stands	9,960.9	75.7	33.5	42.2	16.5	2.5	5.3
Poorly stocked stands	4,168.0	38.9	19.2	19.7	26.8	10.8	23.5
All stands	18,949.3	72.7	31.5	41.2	15.9	3.6	7.8
All ownerships:							
Fully stocked stands	6,448.4	92.6	37.4	55.2	6.6	0.2	0.6
Medium stocked stands	12,931.0	75.6	35.1	40.5	15.7	2.8	5.9
Poorly stocked stands	5,459.6	38.8	19.6	19.2	26.2	10.9	24.1
All stands	24,839.0	73.1	32.6	40.5	15.2	3.7	8.0

¹Based on degree of growing-stock stocking.

Table 7. — Area of commercial forest land, by site and ownership classes, Georgia, 1972

Site class	All ownerships	National Forest	Other public	Forest industry	Farmer and misc. private
	<i>Thousand acres</i>				
165 cu. ft. or more	146.1	54.7	—	15.3	76.1
120 to 165 cu. ft.	550.1	43.0	22.9	74.0	410.2
85 to 120 cu. ft.	5,892.2	186.8	145.4	944.1	4,615.9
50 to 85 cu. ft.	16,686.9	474.4	520.5	3,108.7	12,583.3
Less than 50 cu. ft.	1,563.7	80.4	43.4	176.1	1,263.8
All classes	24,839.0	839.3	732.2	4,318.2	18,949.3

Table 8. — Area of commercial forest land, by forest types and ownership classes, Georgia, 1972

Type	All ownerships	Public	Private
	<i>Thousand acres</i>		
Softwood types:			
White pine-hemlock	31.4	26.5	4.9
Longleaf pine	820.6	49.5	771.1
Slash pine	4,527.6	142.8	4,384.8
Loblolly pine	5,014.9	276.5	4,738.4
Shortleaf pine	1,280.9	78.0	1,202.9
Pond pine	222.3	13.6	208.7
Virginia pine	377.7	49.5	328.2
Spruce pine	5.9	—	5.9
Pitch pine	13.0	13.0	—
Sand pine	3.5	—	3.5
Redcedar	27.3	—	27.3
Total	12,325.1	649.4	11,675.7
Hardwood types:			
Oak-pine	4,142.9	254.3	3,888.6
Oak-hickory	4,705.1	552.2	4,152.9
Southern scrub oak	465.7	28.6	437.1
Oak-gum-cypress	2,615.8	70.5	2,545.3
Elm-ash-cottonwood	584.4	16.5	567.9
Total	12,513.9	922.1	11,591.8
All types	24,839.0	1,571.5	23,267.5

Table 9. — Area of noncommercial forest land, by forest types, Georgia, 1972

Type	All areas	Productive reserved areas	Unproductive areas
- - Thousand acres - -			
Longleaf-slash pine	45.5	45.5	—
Loblolly-shortleaf pine	8.6	8.6	—
Oak-pine	35.1	35.1	—
Oak-hickory	13.1	13.1	—
Oak-gum-cypress	311.6	281.4	30.2
Elm-ash-cottonwood	—	—	—
All types	413.9	383.7	30.2

Table 10. — Number of growing-stock trees on commercial forest land, by species and diameter classes, Georgia, 1972

Species	All Classes	Diameter class (inches at breast height)									
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- Thousand trees -----											
Softwood:											
Longleaf pine	105,528	31,924	25,080	21,291	15,785	7,838	2,558	704	236	112	—
Slash pine	541,112	299,411	133,762	57,075	29,022	13,466	5,399	1,786	741	435	15
Loblolly pine	729,603	335,106	179,206	96,390	57,471	33,989	15,888	7,024	2,704	1,774	51
Shortleaf pine	304,474	153,449	78,573	40,692	20,793	7,554	2,325	785	209	91	3
Other yellow pines	107,077	50,051	28,427	15,370	7,631	3,192	1,539	573	142	145	7
Eastern white pine	8,985	3,080	1,480	1,308	997	536	680	302	283	303	16
Eastern hemlock	857	227	185	265	52	20	30	24	19	25	10
Baldcypress	8,818	2,549	2,048	1,160	929	916	641	278	141	135	21
Pondcypress	54,665	22,926	13,486	8,533	5,470	2,499	1,124	366	124	129	8
Other eastern softwoods	3,956	2,412	836	382	207	62	49	—	5	—	3
Total softwoods	1,865,075	901,135	463,083	242,466	138,357	70,072	30,233	11,842	4,604	3,149	134
Hardwood:											
Select white oaks ¹	72,899	29,274	17,024	11,347	6,632	4,264	1,967	975	662	696	58
Select red oaks ²	22,957	9,369	4,274	3,580	2,095	1,282	887	685	370	356	59
Other white oaks	68,573	26,010	16,485	10,534	6,235	4,098	2,284	1,209	820	739	159
Other red oaks	238,508	102,730	55,719	33,026	19,902	11,846	6,822	3,603	2,144	2,402	314
Hickory	72,684	31,421	16,720	10,294	6,459	3,787	2,004	1,065	436	478	20
Hard maple	1,178	666	188	170	44	59	28	15	—	8	—
Soft maple	55,849	22,776	14,116	8,781	4,693	2,591	1,360	874	315	319	24
Beech	1,563	200	141	193	216	325	123	174	71	111	9
Sweetgum	206,814	99,020	49,492	28,748	14,863	8,229	3,598	1,408	801	640	15
Tupelo and blackgum	182,640	69,604	45,226	30,629	18,264	10,438	4,976	2,064	719	674	46
Ash	22,657	8,136	6,135	3,575	2,285	1,265	590	342	159	159	11
Cottonwood	381	182	—	—	86	13	58	27	—	15	—
Basswood	930	393	111	159	134	51	55	19	—	8	—
Yellow-poplar	76,906	28,068	15,826	11,746	9,527	5,242	3,413	1,574	734	714	62
Black walnut	815	453	174	26	104	28	12	10	8	—	—
Black cherry	5,853	2,926	1,742	845	203	61	40	19	12	5	—
Bay and magnolia	30,411	14,385	7,162	4,020	2,429	1,436	546	253	116	51	13
Elm	19,269	8,296	4,765	2,482	1,665	1,168	501	221	107	61	3
Sycamore	2,070	506	480	367	231	177	147	93	21	43	5
Other eastern hardwoods	21,483	10,728	4,100	2,662	1,960	995	502	341	112	72	11
Total hardwoods	1,104,440	465,143	259,880	163,184	98,027	57,355	29,913	14,971	7,607	7,551	809
All species	2,969,515	1,366,278	722,963	405,650	236,384	127,427	60,146	26,813	12,211	10,700	943

¹Includes white and swamp chestnut oaks.

²Includes cherrybark, northern red, and Shumard oaks.

Table 11. — Volume of timber on commercial forest land, by class of timber and by softwood and hardwood, Georgia, 1972

Class of timber	All species	Softwood	Hardwood
- - Million cubic feet - -			
Sawtimber trees:			
Saw-log portion	14,126.2	8,868.5	5,257.7
Upper-stem portion	1,726.3	850.1	876.2
Total	15,852.5	9,718.6	6,133.9
Poletimber trees	9,479.7	5,050.3	4,429.4
All growing-stock trees	25,332.2	14,768.9	10,563.3
Rough trees:			
Sawtimber-size trees	727.2	73.5	653.7
Poletimber-size trees	1,260.2	122.9	1,137.3
Total	1,987.4	196.4	1,791.0
Rotten trees:			
Sawtimber-size trees	557.7	24.9	532.8
Poletimber-size trees	114.2	2.5	111.7
Total	671.9	27.4	644.5
Salvable dead trees:			
Sawtimber-size trees	28.4	18.3	10.1
Poletimber-size trees	11.9	7.8	4.1
Total	40.3	26.1	14.2
Total, all timber	28,031.8	15,018.8	13,013.0

Table 12. — Volume of growing stock and sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Georgia, 1972

Ownership class	Growing stock			Sawtimber		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			Million board feet ¹		
National Forest	1,178.2	485.0	693.2	3,939.9	1,935.3	2,004.6
Other public	1,005.8	709.7	296.1	3,498.4	2,712.7	785.7
Forest industry	4,273.7	2,605.7	1,668.0	12,278.6	7,660.7	4,617.9
Farmer and misc. private	18,874.5	10,968.5	7,906.0	52,481.8	33,346.2	19,135.6
All ownerships	25,332.2	14,768.9	10,563.3	72,198.7	45,654.9	26,543.8

¹International 1/4-inch rule.

Table 13. — Volume of growing stock on commercial forest land, by species and diameter classes, Georgia, 1972

Species	All classes	Diameter class (inches at breast height)									
		5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- Million cubic feet -----											
Softwood:											
Longleaf pine	1,250.1	92.9	175.8	285.0	324.7	217.1	96.3	35.0	13.9	9.4	—
Slash pine	3,779.2	777.3	843.2	748.6	615.4	393.2	217.4	95.4	50.0	35.9	2.8
Loblolly pine	6,109.9	806.4	1,013.9	1,042.5	1,067.0	908.1	585.3	348.9	174.1	155.1	8.6
Shortleaf pine	2,014.7	354.5	466.7	455.9	387.7	202.4	86.3	39.3	14.0	7.5	0.4
Other yellow pines	804.2	137.2	173.4	170.0	136.0	82.0	55.7	27.2	9.0	12.4	1.3
Eastern white pine	152.9	8.8	8.4	13.8	17.3	13.5	24.1	14.8	18.3	31.5	2.4
Eastern hemlock	15.3	0.4	0.9	3.3	1.0	0.5	1.2	1.4	1.3	3.2	2.1
Baldcypress	140.9	7.7	12.7	14.3	17.9	26.1	24.6	12.9	8.8	11.5	4.4
Pondcypress	484.7	71.8	89.7	94.5	96.8	62.1	36.8	16.0	6.9	8.9	1.2
Other eastern softwoods	17.0	4.7	3.9	3.0	2.7	1.2	0.9	—	0.3	—	0.3
Total softwoods	14,768.9	2,261.7	2,788.6	2,830.9	2,666.5	1,906.2	1,128.6	590.9	296.6	275.4	23.5
Hardwood:											
Select white oaks ¹	746.3	76.5	98.5	124.0	113.3	108.4	68.1	43.6	38.9	64.1	10.9
Select red oaks ²	297.9	27.7	26.9	38.6	37.3	33.9	31.7	31.8	23.0	35.3	11.7
Other white oaks	711.3	60.9	88.6	102.9	98.9	94.6	72.5	48.7	43.3	67.2	33.7
Other red oaks	2,329.0	264.5	319.1	342.5	323.3	279.6	220.2	154.6	119.5	239.8	65.9
Hickory	678.2	70.4	91.8	104.3	111.3	96.7	72.0	50.8	28.6	47.9	4.4
Hard maple	8.7	2.3	0.9	1.8	0.5	1.2	0.9	0.6	—	0.5	—
Soft maple	513.9	65.4	83.5	94.7	78.7	63.1	43.1	37.0	15.4	29.2	3.8
Beech	42.7	0.5	1.0	2.0	3.8	8.7	4.5	7.6	4.4	8.7	1.5
Sweetgum	1,652.5	212.1	282.7	324.6	285.1	226.5	136.6	68.0	52.1	61.7	3.1
Tupelo and blackgum	1,721.6	184.4	274.2	332.2	320.9	261.5	160.5	86.3	34.8	59.7	7.1
Ash	237.6	22.0	38.8	40.1	41.4	32.5	21.3	14.4	9.0	15.2	2.3
Cottonwood	7.6	0.5	—	—	1.7	0.4	2.0	1.3	—	1.7	—
Basswood	12.0	1.4	0.5	2.3	2.4	1.7	2.0	1.1	—	0.6	—
Yellow-poplar	921.8	74.8	97.2	133.1	172.4	138.7	120.0	70.3	43.1	60.6	11.6
Black walnut	5.5	1.1	1.0	0.2	1.5	0.6	0.3	0.4	0.4	—	—
Black cherry	35.0	7.5	10.7	8.8	3.1	1.5	1.3	1.1	0.7	0.3	—
Bay and magnolia	251.4	41.8	46.5	43.7	44.1	36.1	17.3	10.0	5.5	4.5	1.9
Elm	174.9	18.1	26.2	25.5	30.3	31.2	18.8	10.2	6.9	7.2	0.5
Sycamore	32.9	1.7	3.9	4.3	4.2	4.5	4.8	4.0	1.1	3.8	0.6
Other eastern hardwoods	182.5	26.7	24.2	27.3	33.9	24.4	17.4	14.1	6.7	6.3	1.5
Total hardwoods	10,563.3	1,160.3	1,516.2	1,752.9	1,708.1	1,445.8	1,015.3	655.9	434.0	714.3	160.5
All species	25,332.2	3,422.0	4,304.8	4,583.8	4,374.6	3,352.0	2,143.9	1,246.8	730.6	989.7	184.0

¹Includes white and swamp chestnut oaks.

²Includes cherrybark, northern red, and Shumard oaks.

Table 14. — Volume of sawtimber on commercial forest land, by species and diameter classes, Georgia, 1972

Species	All classes	Diameter class (inches at breast height)							
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
----- Million board feet -----									
Softwood:									
Longleaf pine	4,776.1	1,173.4	1,564.9	1,156.7	550.4	196.6	76.1	58.0	—
Slash pine	9,940.4	2,859.5	2,852.5	2,030.6	1,182.1	526.1	279.2	194.9	15.5
Loblolly pine	20,782.7	3,803.9	4,961.3	4,730.4	3,326.5	1,976.2	1,017.5	914.0	52.9
Shortleaf pine	5,294.5	1,670.6	1,767.0	1,028.4	474.2	222.7	82.8	45.9	2.9
Other yellow pines	2,146.0	589.2	587.5	402.2	293.4	144.1	52.0	70.1	7.5
Eastern white pine	704.5	47.1	72.8	63.5	124.9	81.6	105.6	193.6	15.4
Eastern hemlock	72.3	11.1	4.1	2.4	6.1	7.3	7.7	19.4	14.2
Baldcypress	560.6	33.5	68.0	126.0	132.8	66.8	46.2	62.8	24.5
Pondcypress	1,343.8	300.4	393.7	291.2	187.5	84.0	36.4	44.7	5.9
Other eastern softwoods	34.0	11.3	10.3	5.0	4.2	—	1.9	—	1.3
Total softwoods	45,654.9	10,500.0	12,282.1	9,836.4	6,282.1	3,305.4	1,705.4	1,603.4	140.1
Hardwood:									
Select white oaks ¹	1,955.4	—	378.7	441.4	313.3	212.3	200.7	344.5	64.5
Select red oaks ²	898.4	—	122.7	132.9	137.7	150.4	113.0	177.9	63.8
Other white oaks	1,904.3	—	327.5	362.5	310.6	222.3	215.5	324.7	141.2
Other red oaks	6,174.6	—	1,099.2	1,140.1	1,023.5	767.0	617.8	1,200.6	326.4
Hickory	1,822.4	—	374.4	399.4	351.0	259.2	151.4	261.4	25.6
Hard maple	17.3	—	2.1	5.8	4.7	2.1	—	2.6	—
Soft maple	1,089.3	—	244.9	242.9	183.3	177.3	77.8	142.8	20.3
Beech	180.0	—	12.4	36.9	22.2	36.4	22.8	42.4	6.9
Sweetgum	3,695.8	—	1,032.7	999.3	693.8	354.0	282.2	316.9	16.9
Tupelo and blackgum	3,722.5	—	1,002.9	1,035.1	730.1	441.0	182.3	297.8	33.3
Ash	555.3	—	123.4	127.0	98.3	69.4	48.7	79.3	9.2
Cottonwood	35.6	—	6.6	2.3	9.3	7.5	—	9.9	—
Basswood	31.7	—	7.8	7.1	8.1	5.8	—	2.9	—
Yellow-poplar	2,974.8	—	634.8	625.1	633.0	391.5	251.4	366.6	72.4
Black walnut	12.2	—	4.5	3.2	1.8	1.6	1.1	—	—
Black cherry	27.5	—	7.8	5.3	5.4	3.6	3.5	1.9	—
Bay and magnolia	487.8	—	149.0	146.0	78.5	50.0	29.2	22.8	12.3
Elm	429.1	—	99.6	119.7	87.6	48.3	34.9	35.8	3.2
Sycamore	106.3	—	13.2	18.1	22.5	21.7	7.0	20.1	3.7
Other eastern hardwoods	423.5	—	113.8	95.8	78.5	65.0	32.2	31.0	7.2
Total hardwoods	26,543.8	—	5,758.0	5,945.9	4,793.2	3,286.4	2,271.5	3,681.9	806.9
All species	72,198.7	10,500.0	18,040.1	15,782.3	11,075.3	6,591.8	3,976.9	5,285.3	947.0

¹Includes white and swamp chestnut oaks.

²Includes cherrybark, northern red, and Shumard oaks.

Table 15. — Volume of sawtimber on commercial forest land, by species and quality classes, Georgia, 1972

Species	All grades	Log or tree grade			
		1	2	3	4
----- Million board feet -----					
Softwood:					
Yellow pines ¹	42,939.7	11,571.4	4,754.4	26,613.9	(²)
Eastern white pine ³	704.5	42.3	202.2	460.0	—
Cypress ⁴	1,904.4	625.5	714.3	564.6	—
Other eastern softwoods ³	106.3	—	1.2	105.1	—
Total	45,654.9	12,239.2	5,672.1	27,743.6	—
Hardwood: ¹					
Select white and red oaks	2,853.8	941.2	529.2	1,205.2	178.2
Other white and red oaks	8,078.9	1,798.7	1,541.7	4,275.4	463.1
Hickory	1,822.4	283.5	348.6	1,097.9	92.4
Hard maple	17.3	1.5	5.2	10.6	—
Sweetgum	3,695.8	668.0	657.1	2,201.7	169.0
Ash, walnut, and black cherry	595.0	194.5	205.9	192.0	2.6
Yellow-poplar	2,974.8	619.1	635.5	1,576.9	143.3
Other hardwoods	6,505.8	1,126.8	1,358.9	3,864.5	155.6
Total	26,543.8	5,633.3	5,282.1	14,424.2	1,204.2
All species	72,198.7	17,872.5	10,954.2	42,167.8	1,204.2

¹Based on *Southern Pine Tree Grades for Yard and Structural Lumber*, Research Paper SE-40, published by the Southeastern Forest Experiment Station in 1968.

²Not applicable.

³Based on *Trial Log Grades for Eastern White Pine* prepared by the Northeastern Forest Experiment Station in 1960.

⁴Graded according to *Hardwood Log Grades for Standard Lumber* published by the U. S. Forest Products Laboratory in 1953. Specifications for the grade 4 tie and timber logs are based chiefly on knot size and log soundness.

Table 16. — Net annual growth and removals of growing stock on commercial forest land, by species, Georgia, 1972

Species	Net annual growth	Annual timber removals
----- Million cubic feet -----		
Softwood:		
Yellow pines	1,128.0	778.5
Eastern white pine	9.5	1.1
Cypress	12.7	3.9
Other eastern softwoods	2.9	0.3
Total softwoods	1,153.1	783.8
Hardwood:		
Select white and red oaks	44.3	24.2
Other white and red oaks	134.4	60.4
Hickory	19.9	13.7
Hard maple	0.4	—
Sweetgum	75.4	44.0
Ash, walnut, and black cherry	10.5	5.2
Yellow-poplar	59.0	27.4
Tupelo and blackgum	33.4	37.2
Other eastern hardwoods	46.8	21.9
Total hardwoods	424.1	234.0
All species	1,577.2	1,017.8

Table 17. — Net annual growth and removals of growing stock on commercial forest land, by ownership classes and by softwood and hardwood, Georgia, 1971

Ownership class	Net annual growth			Annual timber removals		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
----- Million cubic feet -----						
National Forest	49.9	26.4	23.5	14.8	9.2	5.6
Other public	58.1	47.5	10.6	42.5	33.4	9.1
Forest industry	271.2	210.0	61.2	210.9	180.2	30.7
Farmer and misc. private	1,198.0	869.2	328.8	749.6	561.0	188.6
All ownerships	1,577.2	1,153.1	424.1	1,017.8	783.8	234.0

Table 18. — Net annual growth and removals of sawtimber on commercial forest land, by species, Georgia, 1971

Species	Net annual growth and removals	
	Net annual growth	Annual timber removals
<i>Million board feet</i>		
Softwood:		
Yellow pines	3,904.6	2,900.3
Eastern white pine	41.2	6.3
Cypress	57.1	11.7
Other eastern softwoods	5.2	—
Total softwoods	4,008.1	2,918.3
Hardwood:		
Select white and red oaks	141.5	90.5
Other white and red oaks	392.2	201.7
Hickory	60.5	58.2
Hard maple	0.6	—
Sweetgum	177.8	145.3
Ash, walnut, and black cherry	29.5	14.8
Yellow-poplar	215.1	97.7
Tupelo and blackgum	93.2	115.2
Other eastern hardwoods	124.2	64.8
Total hardwoods	1,234.6	788.2
All species	5,242.7	3,706.5

Table 21. — Mortality of growing stock and sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Georgia, 1971

Ownership class	Growing stock			Sawtimber		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	<i>Million cubic feet</i>			<i>Million board feet</i>		
National Forest	8.3	3.2	5.1	26.8	10.1	16.7
Other public	5.8	3.7	2.1	17.5	11.7	5.8
Forest industry	25.7	15.3	10.4	69.7	39.6	30.1
Farmer and misc. private	115.8	62.0	53.8	292.7	150.4	142.3
All ownerships	155.6	84.2	71.4	406.7	211.8	194.9

Table 22. — Mortality of growing stock and sawtimber on commercial forest land, by causes and by softwood and hardwood, Georgia, 1971

Cause of death	Growing stock			Sawtimber		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	<i>Million cubic feet</i>			<i>Million board feet</i>		
Fire	9.2	6.2	3.0	19.5	13.8	5.7
Insects	11.2	11.1	0.1	44.7	44.7	—
Disease	20.9	15.2	5.7	54.6	39.1	15.5
Other	58.0	33.4	24.6	111.7	56.7	55.0
Unknown	56.3	18.3	38.0	176.2	57.5	118.7
All causes	155.6	84.2	71.4	406.7	211.8	194.9

Table 19. — Net annual growth and removals of sawtimber on commercial forest land, by ownership classes and by softwood and hardwood, Georgia, 1971

Ownership class	Net annual growth			Annual timber removals		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
<i>Million board feet</i>						
National Forest	184.7	108.5	76.2	61.0	35.4	25.6
Other public	229.5	196.7	32.8	164.7	134.8	29.9
Forest industry	904.9	712.1	192.8	761.1	664.0	97.1
Farmer and misc. private	3,923.6	2,990.8	932.8	2,719.7	2,084.1	635.6
All ownerships	5,242.7	4,008.1	1,234.6	3,706.5	2,918.3	788.2

Table 20. — Mortality of growing stock and sawtimber on commercial forest land, by species, Georgia, 1971

Species	Growing stock	Sawtimber
	<i>Million cu. ft.</i>	<i>Million bd. ft.</i>
Softwood:		
Yellow pines	82.0	202.9
Eastern white pine	0.5	3.4
Cypress	1.4	4.5
Other eastern softwoods	0.3	1.0
Total softwoods	84.2	211.8
Hardwood:		
Select white and red oaks	7.2	23.0
Other white and red oaks	21.1	61.7
Hickory	4.1	15.0
Hard maple	0.1	0.2
Sweetgum	9.2	22.3
Ash, walnut, and black cherry	3.2	4.5
Yellow-poplar	3.6	11.1
Tupelo and blackgum	7.5	25.2
Other eastern hardwoods	15.4	31.9
Total hardwoods	71.4	194.9
All species	155.6	406.7

Table 23. — Output of timber products, by product, by source of material, and by softwood and hardwood, Georgia, 1971

Product and species group	Standard units	Total output		Roundwood products		Plant byproducts	
		Number of units	Thousand cu. ft.	Number of units	Thousand cu. ft.	Number of units	Thousand cu. ft.
Saw logs:							
Softwood	M bd. ft. ¹	1,220,867	241,738	1,208,196	239,229	12,671	2,509
Hardwood	M bd. ft. ¹	304,779	57,599	304,266	57,502	513	97
Total	M bd. ft. ¹	1,525,646	299,337	1,512,462	296,731	13,184	2,606
Veneer logs and bolts:							
Softwood	M bd. ft. ¹	153,247	27,147	153,247	27,147	—	—
Hardwood	M bd. ft. ¹	76,742	13,200	76,742	13,200	—	—
Total	M bd. ft. ¹	229,989	40,347	229,989	40,347	—	—
Pulpwood: ²							
Softwood	Std. cords ³	6,431,032	479,047	5,343,014	398,001	1,088,018	81,046
Hardwood	Std. cords ³	827,088	62,528	621,245	46,966	205,843	15,562
Total	Std. cords ³	7,258,120	541,575	5,964,259	444,967	1,293,861	96,608
Cooperage:							
Softwood	M bd. ft. ¹	—	—	—	—	—	—
Hardwood	M bd. ft. ¹	531	89	531	89	—	—
Total	M bd. ft. ¹	531	89	531	89	—	—
Poles and piling:							
Softwood	M pieces	601	10,340	601	10,340	—	—
Hardwood	M pieces	—	—	—	—	—	—
Total	M pieces	601	10,340	601	10,340	—	—
Posts (round and split):							
Softwood	M pieces	10,225	6,590	10,225	6,590	—	—
Hardwood	M pieces	—	—	—	—	—	—
Total	M pieces	10,225	6,590	10,225	6,590	—	—
Other: ⁴							
Softwood	M cu. ft.	16,932	16,932	1,241	1,241	15,691	15,691
Hardwood	M cu. ft.	4,521	4,521	1,501	1,501	3,020	3,020
Total	M cu. ft.	21,453	21,453	2,742	2,742	18,711	18,711
Total industrial products:							
Softwood		—	781,794	—	682,548	—	99,246
Hardwood		—	137,937	—	119,258	—	18,679
Total		—	919,731	—	801,806	—	17,925
Fuelwood: ⁵							
Softwood	Std. cords	35,092	5,629	24,580	4,867	10,512	762
Hardwood	Std. cords	41,476	6,962	33,881	6,403	7,595	559
Total	Std. cords	76,568	12,591	58,461	11,270	18,107	1,321
All products:							
Softwood		—	787,423	—	687,415	—	100,008
Hardwood		—	144,899	—	125,661	—	19,238
Total		—	932,322	—	813,076	—	119,246

¹International 1/4-inch rule.

²Roundwood figures include 243,349 cords of roundwood chipped at other primary wood-using plants.

³Rough-wood basis (includes chips converted to equivalent standard cords).

⁴Includes hewn ties, excelsior bolts, shingle bolts, turnery bolts, and chemical wood.

⁵Excludes approximately 9,054 thousand cubic feet of plant byproducts used for industrial fuel.

Table 24. — Output of roundwood products, by product, by source, and by softwood and hardwood, Georgia, 1971

Product and species group	All sources	Growing stock trees ¹			Cull trees ¹	Salvable dead trees ¹	Other sources ²
		Total	Saw-timber	Pole-timber			
----- Thousand cubic feet -----							
Saw logs:							
Softwood	239,229	232,251	214,134	18,117	2,782	—	4,196
Hardwood	57,502	56,417	55,017	1,400	1,022	—	63
Total	296,731	288,668	269,151	19,517	3,804	—	4,259
Veneer logs and bolts:							
Softwood	27,147	26,552	26,552	—	—	—	595
Hardwood	13,200	12,886	12,886	—	211	—	103
Total	40,347	39,438	39,438	—	211	—	698
Pulpwood:							
Softwood	398,001	366,280	220,421	145,859	9,063	163	22,495
Hardwood	46,966	44,150	21,448	22,702	2,096	—	720
Total	444,967	410,430	241,869	168,561	11,159	163	23,215
Cooperage:							
Softwood	—	—	—	—	—	—	—
Hardwood	89	86	86	—	—	—	3
Total	89	86	86	—	—	—	3
Poles and piling:							
Softwood	10,340	10,154	10,154	—	—	—	186
Hardwood	—	—	—	—	—	—	—
Total	10,340	10,154	10,154	—	—	—	186
Posts (round and split):							
Softwood	6,590	4,312	300	4,012	957	—	1,321
Hardwood	—	—	—	—	—	—	—
Total	6,590	4,312	300	4,012	957	—	1,321
Other:							
Softwood	1,241	1,165	175	990	—	—	76
Hardwood	1,501	1,432	1,081	351	46	—	23
Total	2,742	2,597	1,256	1,341	46	—	99
Total industrial products:							
Softwood	682,548	640,714	471,736	168,978	12,802	163	28,869
Hardwood	119,258	114,971	90,518	24,453	3,375	—	912
Total	801,806	755,685	562,254	193,431	16,177	163	29,781
Fuelwood:							
Softwood	4,867	4,585	3,659	926	—	—	282
Hardwood	6,403	5,322	2,858	2,464	787	—	294
Total	11,270	9,907	6,517	3,390	787	—	576
All products:							
Softwood	687,415	645,299	475,395	169,904	12,802	163	29,151
Hardwood	125,661	120,293	93,376	26,917	4,162	—	1,206
Total	813,076	765,592	568,771	196,821	16,964	163	30,357

¹On commercial forest land.

²Includes trees less than 5.0 inches in diameter, tree tops and limbs from commercial forest areas, or material from noncommercial forest land or nonforest land such as fence rows or suburban areas.

Table 25. — Annual timber removals from growing stock on commercial forest land, by items and by softwood and hardwood, Georgia, 1971

Item	All species	Softwood	Hardwood
<i>Thousand cubic feet</i>			
Roundwood products:			
Saw logs	288,668	232,251	56,417
Veneer logs and bolts	39,438	26,552	12,886
Pulpwood	410,430	366,280	44,150
Cooperage logs and bolts	86	—	86
Poles and piling	10,154	10,154	—
Posts	4,312	4,312	—
Other	2,597	1,165	1,432
Fuelwood	9,907	4,585	5,322
All products	765,592	645,299	120,293
Logging residues	117,921	72,851	45,070
Other removals	134,258	65,711	68,547
Total removals	1,017,771	783,861	233,910

Table 26. — Annual timber removals from the sawtimber on commercial forest land, by items and by softwood and hardwood, Georgia, 1971

Item	All species	Softwood	Hardwood
<i>Thousand board feet</i>			
Roundwood products:			
Saw logs	1,466,172	1,180,544	285,628
Veneer logs and bolts	224,806	149,891	74,915
Pulpwood	1,041,421	987,032	54,389
Cooperage logs and bolts	511	—	511
Poles and piling	59,909	59,909	—
Posts	1,405	1,405	—
Other	4,634	633	4,001
Fuelwood	24,136	15,432	8,704
All products	2,822,994	2,394,846	428,148
Logging residues	398,510	265,177	133,333
Other removals	484,919	258,208	226,711
Total removals	3,706,423	2,918,231	788,192

Table 27. — Volume of unused residues at primary manufacturing plants, by industry and type of residue, and by softwood and hardwood, Georgia, 1971

Species group and type of residues	All industries	Lumber	Veneer and plywood	Other
<i>Thousand cubic feet</i>				
Softwoods:				
Coarse ¹	2,604	2,562	6	36
Fine ²	24,831	24,712	21	98
Total	27,435	27,274	27	134
Hardwoods:				
Coarse ¹	3,383	2,719	148	516
Fine ²	10,533	9,775	757	1
Total	13,916	12,494	905	517
All species:				
Coarse ¹	5,987	5,281	154	552
Fine ²	35,364	34,487	778	99
Total	41,351	39,768	932	651

¹Material, such as slabs, edgings, and veneer cores.

²Material, such as sawdust and shavings.

Table 28. — Projection of net annual growth, available cut, and inventory of sawtimber and growing stock on commercial forest land, by softwood and hardwood, Georgia, 1971 to 2001¹

Species group	1971	Projected to:		
		1981	1991	2001
GROWING STOCK (In thousand cubic feet)				
Softwood:				
Cut	783,800	1,012,500	1,168,200	1,260,200
Growth	1,153,100	1,282,800	1,307,700	1,260,200
Inventory ²	14,768,900	17,667,100	19,273,300	19,537,300
Hardwood:				
Cut	234,000	319,400	404,300	473,100
Growth	424,100	465,900	484,000	473,100
Inventory ²	10,563,300	12,030,400	12,880,000	13,000,800
Total:				
Cut	1,017,800	1,331,900	1,572,500	1,733,300
Growth	1,577,200	1,748,700	1,791,700	1,733,300
Inventory ²	25,332,200	29,697,500	32,153,300	32,538,100
SAWTIMBER (In thousand board feet)				
Softwood:				
Cut	2,918,300	3,780,300	4,577,000	5,061,700
Growth	4,008,100	4,867,000	5,175,900	5,061,700
Inventory ²	45,654,900	56,885,400	63,932,200	65,486,200
Hardwood:				
Cut	788,200	981,800	1,171,800	1,308,900
Growth	1,234,600	1,331,600	1,357,100	1,308,900
Inventory ²	26,543,800	30,096,700	32,058,200	32,286,000
Total:				
Cut	3,706,500	4,762,100	5,748,800	6,370,600
Growth	5,242,700	6,198,600	6,533,000	6,370,600
Inventory ²	72,198,700	86,982,100	95,990,400	97,772,200

¹Assumptions:

1. Area of commercial forest land will decline at the rate of 50,000 acres each year.

2. Forestry progress will continue at the rate indicated by recent trends.

3. Cut starting at the 1971 level will gradually increase and come into balance with growth by year 2001.

²Inventory as of January 1 of the following year.

Table 29. — Basal area per acre of growing stock and rough and rotten trees 5.0 inches d.b.h. and larger, by forest type and Survey Unit, Georgia, 1972

Forest type	State	South-east	South-west	Central	North Central	North
----- Square feet -----						
White pine-hemlock:						
Growing stock	118.6	—	—	—	—	118.6
Rough and rotten trees	13.5	—	—	—	—	13.5
All trees	132.1	—	—	—	—	132.1
Longleaf-slash pine:						
Growing stock	40.1	38.8	42.0	44.0	69.4	86.4
Rough and rotten trees	1.5	1.3	1.9	1.6	7.6	—
All trees	41.6	40.1	43.9	45.6	77.0	86.4
Loblolly-shortleaf pine:						
Growing stock	56.2	49.1	48.3	55.6	58.8	61.2
Rough and rotten trees	3.4	3.2	3.5	2.6	3.4	6.9
All trees	59.6	52.3	51.8	58.2	62.2	68.1
Oak-pine:						
Growing stock	45.6	41.6	39.5	46.4	53.0	49.0
Rough and rotten trees	7.7	6.8	8.9	6.3	6.6	14.2
All trees	53.3	48.4	48.4	52.7	59.6	63.2
Oak-hickory:						
Growing stock	41.1	32.4	26.1	40.7	52.5	46.4
Rough and rotten trees	12.3	10.7	12.4	9.4	11.9	18.2
All trees	53.4	43.1	38.5	50.1	64.4	64.6
Oak-gum-cypress:						
Growing stock	65.1	64.7	61.6	69.6	65.7	—
Rough and rotten trees	18.8	21.2	18.5	14.2	16.5	—
All trees	83.9	85.9	80.1	83.8	82.2	—
Elm-ash-cottonwood:						
Growing stock	59.2	64.9	55.4	62.3	55.2	38.9
Rough and rotten trees	17.7	23.6	16.0	14.3	17.6	22.1
All trees	76.9	88.5	71.4	76.6	72.8	61.0
All types:						
Growing stock	48.8	44.3	44.1	51.2	56.4	52.1
Rough and rotten trees	7.5	7.0	8.1	6.1	6.7	13.8
All trees	56.3	51.3	52.2	57.3	63.1	65.9

Table 30. — Number of growing stock and rough and rotten trees 1.0-4.9 inches d.b.h. per acre, by forest type and Survey Unit, Georgia, 1972

Forest type	State	South-east	South-west	Central	North Central	North
----- Number of trees -----						
White pine-hemlock:						
Growing stock	300	—	—	—	—	300
Rough and rotten trees	320	—	—	—	—	320
All trees	620	—	—	—	—	620
Longleaf-slash pine:						
Growing stock	302	303	306	281	200	400
Rough and rotten trees	82	83	78	86	200	400
All trees	384	386	384	367	400	800
Loblolly-shortleaf pine:						
Growing stock	436	344	319	454	456	439
Rough and rotten trees	207	119	154	185	200	412
All trees	643	463	473	639	656	851
Oak-pine:						
Growing stock	332	340	350	347	310	290
Rough and rotten trees	339	277	228	340	396	527
All trees	671	617	578	687	706	817
Oak-hickory:						
Growing stock	231	198	208	278	244	180
Rough and rotten trees	367	262	234	364	380	494
All trees	598	460	442	642	624	674
Oak-gum-cypress:						
Growing stock	344	384	314	311	192	—
Rough and rotten trees	325	369	255	292	375	—
All trees	669	753	569	603	567	—
Elm-ash-cottonwood:						
Growing stock	148	166	175	170	94	150
Rough and rotten trees	320	379	425	279	244	625
All trees	468	545	600	449	338	775
All types:						
Growing stock	330	314	300	361	361	284
Rough and rotten trees	246	185	170	258	283	475
All trees	576	499	470	619	644	759

Table 31. — Area of commercial forest land, by stand volume (board feet) and ownership classes, by physiographic classes, Georgia, 1972

Ownership class and stand volume per acre ¹ (Bd. ft.)	All classes	Physiographic class								
		Deep swamps	Broad stream margins	Narrow stream margins	Mountain tops and slopes	Flatwoods and dry pocosins	Bays and wet pocosins	Rolling uplands	Sandhills	Other misc. classes
<i>Thousand acres</i>										
National Forest:										
Less than 1,500	116.9	—	—	2.3	87.0	—	—	22.8	—	4.8
1,500 to 5,000	340.7	—	—	4.6	208.1	—	—	119.1	—	8.9
More than 5,000	381.7	—	3.9	16.3	200.9	—	—	154.3	—	6.3
All classes	839.3	—	3.9	23.2	496.0	—	—	296.2	—	20.0
Other public:										
Less than 1,500	291.1	4.0	0.7	24.4	—	100.9	10.5	139.8	0.5	10.3
1,500 to 5,000	231.0	—	6.0	26.5	3.9	88.0	—	104.2	—	2.4
More than 5,000	210.1	7.7	—	43.8	0.3	43.3	6.9	99.9	—	8.2
All classes	732.2	11.7	6.7	94.7	4.2	232.2	17.4	343.9	0.5	20.9
Forest industry:										
Less than 1,500	2,347.5	4.2	35.9	94.7	20.9	904.3	81.6	1,127.7	38.1	40.1
1,500 to 5,000	1,111.8	4.2	32.6	168.0	18.4	241.8	29.0	563.0	—	53.9
More than 5,000	858.9	18.0	176.8	170.2	6.2	137.2	18.4	296.1	—	36.0
All classes	4,318.2	26.4	245.3	433.8	45.5	1,283.3	129.0	1,986.8	38.1	130.0
Farmer and misc. private:										
Less than 1,500	8,421.2	10.8	50.3	615.4	131.9	1,499.2	163.3	5,547.3	190.8	212.2
1,500 to 5,000	6,955.7	35.1	173.5	1,159.9	226.3	812.9	115.3	4,239.2	21.4	172.1
More than 5,000	3,572.4	36.8	201.6	929.4	41.5	512.5	27.4	1,717.4	—	105.8
All classes	18,949.3	82.7	425.4	2,704.7	399.7	2,824.6	306.0	11,503.9	212.2	490.1
All ownerships:										
Less than 1,500	11,176.7	19.0	86.9	736.8	239.8	2,504.4	255.4	6,837.6	229.4	267.4
1,500 to 5,000	8,639.2	39.3	212.1	1,359.9	456.7	1,142.7	144.3	5,025.5	21.4	237.3
More than 5,000	5,023.1	62.5	382.3	1,159.7	248.9	693.0	52.7	2,267.7	—	661.0
All classes	24,839.0	120.8	681.3	3,256.4	945.4	4,340.1	452.4	14,130.8	250.8	661.0

¹Sawtimber volume, International 1/4-inch rule.

Table 32. — Area of commercial forest land, by stand volume (cubic feet) and ownership classes, by physiographic classes, Georgia, 1972

Ownership class and stand volume per acre ¹ (Cu. ft.)	All classes	Physiographic class								
		Deep swamps	Broad stream margins	Narrow stream margins	Mountain tops and slopes	Flatwoods and dry pocosins	Bays and wet pocosins	Rolling uplands	Sandhills	Other misc. classes
----- <i>Thousand acres</i> -----										
National Forest:										
Less than 500	58.6	—	—	0.3	45.4	—	—	12.9	—	—
500 to 1,000	159.3	—	—	2.0	97.8	—	—	50.8	—	8.7
More than 1,000	621.4	—	3.9	20.9	352.8	—	—	232.5	—	11.3
All classes	839.3	—	3.9	23.2	496.0	—	—	296.2	—	20.0
Other public:										
Less than 500	273.7	4.0	0.7	21.0	3.9	89.3	5.6	141.4	0.5	7.3
500 to 1,000	116.1	—	—	14.9	—	52.8	4.9	38.1	—	5.4
More than 1,000	342.4	7.7	6.0	58.8	0.3	90.1	6.9	164.4	—	8.2
All classes	732.2	11.7	6.7	94.7	4.2	232.2	17.4	343.9	0.5	20.9
Forest industry:										
Less than 500	1,780.9	4.2	29.0	65.0	6.6	714.6	78.0	825.9	38.1	19.5
500 to 1,000	888.5	—	12.0	108.5	28.0	214.4	19.5	476.2	—	29.9
More than 1,000	1,648.8	22.2	204.3	260.3	10.9	354.3	31.5	684.7	—	80.6
All classes	4,318.2	26.4	245.3	433.8	45.5	1,283.3	129.0	1,986.8	38.1	130.0
Farmer and misc. private:										
Less than 500	5,378.5	—	29.8	298.8	79.9	1,154.3	141.6	3,347.1	190.4	136.6
500 to 1,000	5,372.9	11.2	66.3	582.6	127.2	734.8	71.9	3,637.1	14.4	127.4
More than 1,000	8,197.9	71.5	329.3	1,823.3	192.6	935.5	92.5	4,519.7	7.4	226.1
All classes	18,949.3	82.7	425.4	2,704.7	399.7	2,824.6	306.0	11,503.9	212.2	490.1
All ownerships:										
Less than 500	7,491.7	8.2	59.5	385.1	135.8	1,958.2	225.2	4,327.3	229.0	163.4
500 to 1,000	6,536.8	11.2	78.3	708.0	253.0	1,002.0	96.3	4,202.2	14.4	171.4
More than 1,000	10,810.5	101.4	543.5	2,163.3	556.6	1,379.9	130.9	5,601.3	7.4	326.2
All classes	24,839.0	120.8	681.3	3,256.4	945.4	4,340.1	452.4	14,130.8	250.8	661.0

¹Growing-stock volume.

Table 33. — Average net volume and growth per acre on commercial forest land, by physiographic class, tree class, and species group, Georgia, 1972

Physiographic class and tree class	Net volume per acre						Net growth per acre					
	Softwood		Hardwood		Total		Softwood		Hardwood		Total	
	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>	<i>Cubic feet</i>	<i>Board feet</i>
Deep swamps:												
Growing stock	465.5	1,765	1,848.6	4,199	2,314.1	5,964	15.5	67	45.2	125	60.7	192
Rough and rotten trees	66.4	—	341.0	—	407.4	—	0.7	—	4.2	—	4.9	—
Total	531.9	1,765	2,189.6	4,199	2,721.5	5,964	16.2	67	49.4	125	65.6	192
Broad stream margins:												
Growing stock	295.8	1,301	1,521.7	4,920	1,817.5	6,221	12.6	64	45.8	162	58.4	226
Rough and rotten trees	13.2	—	295.5	—	309.1	—	0.2	—	5.2	—	5.4	—
Total	309.0	1,301	1,817.6	4,920	2,126.6	6,221	12.8	64	51.0	162	63.8	226
Narrow stream margins:												
Growing stock	444.6	1,752	962.6	2,536	1,407.2	4,288	25.0	111	35.2	111	60.2	222
Rough and rotten trees	5.6	—	213.1	—	218.7	—	0.2	—	4.2	—	4.4	—
Total	450.2	1,752	1,175.7	2,536	1,625.9	4,288	25.2	111	39.4	111	64.6	222
Mountain tops and slopes:												
Growing stock	316.8	1,070	873.4	2,465	1,190.2	3,535	19.2	66	30.5	96	49.7	162
Rough and rotten trees	10.0	—	277.0	—	287.0	—	1.6	—	5.4	—	7.0	—
Total	326.8	1,070	1,150.4	2,465	1,477.2	3,535	20.8	66	35.9	96	56.7	162
Flatwoods and dry pocosins:												
Growing stock	700.9	2,096	106.1	240	807.0	2,336	55.9	200	4.3	10	60.2	210
Rough and rotten trees	4.1	—	41.7	—	45.8	—	0.5	—	0.8	—	1.3	—
Total	705.0	2,096	147.8	240	852.8	2,336	56.4	200	5.1	10	61.5	210
Bays and wet pocosins:												
Growing stock	424.4	1,358	318.8	556	743.2	1,914	25.5	93	11.4	17	36.9	110
Rough and rotten trees	10.5	—	102.2	—	112.7	—	0.5	—	1.7	—	2.2	—
Total	434.9	1,358	421.0	556	855.9	1,914	26.0	93	13.1	17	39.1	110
Rolling uplands:												
Growing stock	637.4	1,881	308.3	706	945.7	2,587	54.2	179	14.8	41	69.0	220
Rough and rotten trees	10.5	—	63.8	—	74.3	—	1.4	—	1.9	—	3.3	—
Total	647.9	1,881	372.1	706	1,020.0	2,587	55.6	179	16.7	41	72.3	220
Sandhills:												
Growing stock	124.8	374	35.1	83	159.9	457	11.2	34	1.9	3	13.1	37
Rough and rotten trees	1.8	—	41.5	—	43.3	—	—	—	0.9	—	0.9	—
Total	126.6	374	76.6	83	203.2	457	11.2	34	2.8	3	14.0	37
Other misc. classes:												
Growing stock	751.0	2,211	572.8	1,260	1,323.8	3,471	32.4	127	16.0	46	48.4	173
Rough and rotten trees	12.1	—	147.3	—	159.4	—	0.4	—	2.4	—	2.8	—
Total	763.1	2,211	720.1	1,260	1,483.2	3,471	32.8	127	18.4	46	51.2	173
All classes:												
Growing stock	594.6	1,838	425.3	1,069	1,019.9	2,907	46.4	161	17.1	50	63.5	211
Rough and rotten trees	9.0	—	98.1	—	107.1	—	1.0	—	2.2	—	3.2	—
Total	603.6	1,838	523.4	1,069	1,127.0	2,907	47.4	161	19.3	50	66.7	211

Table 34. — Land area, by class, major forest type, and survey completion date, Georgia, 1953, 1961, and 1972

Land use class	Survey completion date			Change 1961-1972
	1953	1961 ¹	1972	
- - - Thousand acres - - -				
Forest land:				
Commercial forest land:				
Pine and oak-pine types	15,883.0	16,795.5	16,468.0	—327.5
Hardwood types	8,086.1	8,992.6	8,371.0	—621.6
Total	23,969.1	25,788.1	24,839.0	—949.1
Noncommercial forest land:				
Productive-reserved	17.7	35.4	383.7	+348.3
Unproductive	69.8	25.9	30.2	+ 4.3
Total	87.5	61.3	413.9	+352.6
Nonforest land:				
Cropland	9,703.0	6,943.5	6,279.7	—663.8
Pasture and range	1,648.9	2,522.5	2,825.7	+303.2
Other	1,790.8	1,811.4	2,670.9	+859.5
Total	13,142.7	11,277.4	11,776.3	+498.9
All land ²	37,199.3	37,126.8	37,029.2	— 97.6

¹These figures differ slightly from reported figures because of revisions in the estimates of land area.

²Excludes all water areas.

Table 35. — Volume¹ of sawtimber, growing stock, and all live timber on commercial forest land, by species group, diameter class, and survey completion date, Georgia, 1953, 1961, and 1972

Species group	Year	All classes	Diameter class (inches at breast height)								21.0 and larger
			5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	
SAWTIMBER (In million board feet, International ¼-inch rule)											
Softwood	1953	32,596.5	—	—	8,850.5	9,643.6	6,413.5	3,652.5	1,883.6	969.9	1,182.9
	1961	34,356.9	—	—	9,367.6	10,112.1	6,773.2	3,886.0	2,048.7	1,125.3	1,044.0
	1972	45,654.9	—	—	10,500.0	12,282.1	9,836.4	6,282.1	3,305.4	1,705.4	1,743.5
Hardwood	1953	21,401.5	—	—	—	4,345.7	4,733.8	3,590.8	2,780.9	1,926.1	4,024.2
	1961	20,781.5	—	—	—	4,759.7	4,784.0	3,413.9	2,642.1	1,922.0	3,259.8
	1972	26,543.8	—	—	—	5,758.0	5,945.9	4,793.2	3,286.4	2,271.5	4,488.8
GROWING STOCK (In million cubic feet)											
Softwood	1953	10,308.9	1,294.4	1,943.6	2,361.9	2,087.2	1,242.8	661.9	339.1	171.1	206.9
	1961	11,211.5	1,592.0	2,173.8	2,504.8	2,184.5	1,311.8	698.4	368.0	196.8	181.4
	1972	14,768.9	2,261.7	2,788.6	2,830.9	2,666.5	1,906.2	1,128.6	590.9	296.6	298.9
Hardwood	1953	8,190.8	762.0	1,100.2	1,411.7	1,298.0	1,152.5	762.3	549.8	365.9	788.4
	1961	8,372.3	922.3	1,217.0	1,401.5	1,415.5	1,162.1	726.3	526.5	365.9	635.2
	1972	10,563.3	1,160.3	1,516.2	1,752.9	1,708.1	1,445.8	1,015.3	655.9	434.0	874.8
ALL LIVE TIMBER (In million cubic feet)											
Softwood	1953	10,452.3	1,331.8	1,978.8	2,390.3	2,099.7	1,251.8	664.4	341.4	173.9	220.2
	1961	11,371.7	1,639.4	2,214.4	2,536.1	2,198.6	1,321.2	700.7	370.5	199.5	191.3
	1972	14,992.7	2,327.7	2,848.0	2,871.6	2,685.3	1,920.5	1,132.6	594.1	300.0	312.9
Hardwood	1953	10,132.3	1,073.6	1,435.7	1,706.1	1,523.1	1,323.5	885.8	653.2	447.1	1,084.2
	1961	10,321.9	1,293.3	1,577.9	1,688.7	1,653.2	1,332.1	841.5	624.2	444.3	866.7
	1972	12,998.8	1,618.1	1,955.3	2,105.0	1,990.9	1,654.6	1,172.8	777.5	528.9	1,195.7

¹In order to provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

Table 36. — Volume of all live timber, by species group and Survey Unit, Georgia, 1953, 1961, and 1972

Species group and Survey Unit	1953	1961	Change 1953-1961	1972	Change 1961-1972
	<i>Million cu. ft.</i>	<i>Million cu. ft.</i>	<i>Percent</i>	<i>Million cu. ft.</i>	<i>Percent</i>
Softwood:					
Southeast	4,550.9	4,466.7	— 1.9	4,720.3	+ 5.7
Southwest	1,491.6	1,362.6	— 8.6	1,861.2	+ 36.6
Central	2,485.3	3,188.4	+ 28.3	4,355.9	+ 36.6
North Central	1,130.0	1,402.1	+ 24.1	2,466.7	+ 75.9
North	794.5	951.9	+ 19.8	1,588.6	+ 66.9
All units	10,452.3	11,371.7	+ 8.8	14,992.7	+ 31.8
Hardwood:					
Southeast	3,025.0	2,825.8	— 6.6	3,292.5	+ 16.5
Southwest	1,224.6	1,099.4	— 10.2	1,227.9	+ 11.7
Central	2,790.2	3,029.6	+ 8.6	3,934.4	+ 29.9
North Central	1,278.2	1,565.9	+ 22.5	2,181.7	+ 39.3
North	1,814.3	1,801.2	— 0.7	2,362.3	+ 31.2
All units	10,132.3	10,321.9	+ 1.9	12,998.8	+ 25.9

Knight, Herbert A., and McClure, Joe P.
1974. Georgia's timber, 1972. Southeast. Forest Exp. Stn., USDA Forest Serv.
Resour. Bull. SE-27, 48 pp.

The fourth survey of Georgia's timber resource, completed in November 1972, shows improved timber supplies across most of the State since 1961. Inventory volume increased from 19.6 to 25.3 billion cubic feet, or by 29 percent. A group of counties south of the Altamaha river in Southeast Georgia was the only extensive area which experienced a reduction in timber volume. The rate of net annual growth increased by 50 percent to an average of 63 cubic feet per acre of commercial forest. In 1971, timber growth exceeded removals by almost 55 percent. Some 2 million acres of commercial forest were diverted to other land uses, but only about 1 million acres of new forest were added, which reduced the timber base from 25.8 to 24.8 million acres, or by 3.7 percent.

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**U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE**



**SOUTHEASTERN FOREST EXPERIMENT STATION
ASHEVILLE, NORTH CAROLINA**

OPPORTUNITIES FOR INCREASING TIMBER SUPPLIES IN THE SOUTHEAST

by

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and

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U.S. Department of Agriculture - Forest Service
Southeastern Forest Experiment Station
Asheville, North Carolina



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INTRODUCTION

As wood requirements continue to increase in the United States, efforts to augment future supplies of timber will need to be concentrated in those areas and on those opportunities which promise the greatest returns from the resources which will be available. Particularly at this time, when so many of our priorities and conventional forestry practices are being questioned and reexamined, policy and decision makers need guidelines for identifying opportunities and relating alternative courses of action. Without sound guidelines, there is always the danger of massive misplacement of capital and other resources.

Because of differences in species composition, site capability, land-ownership patterns, forest conditions, and other characteristics, the opportunities for alter-

ing prospective timber supplies vary among the major timber-producing regions. The Southeast¹ is one of the Nation's primary timber-producing regions; forests occupy 93 million acres, or almost 63 percent of its land area, and a significant part of its economy depends on the production and utilization of the region's timber. Timber harvested from its forests currently provides about 8 percent of the plywood, 12 percent of the lumber, and 33 percent of the pulpwood produced in the Nation each year.

Using Forest Survey data, we have developed some rather general procedures for identifying and analyzing opportunities for increasing timber supplies in this region.

¹Florida, Georgia, North Carolina, South Carolina, and Virginia.

PROSPECTIVE TIMBER SUPPLIES

In any assessment of future timber supplies, the first guideline needed is some base measure of the quantity of timber which will likely be available at various points in time under current levels of forest management. This base measure is needed for (1) gauging the intensification and acceleration of timber culture practices required to satisfy projected or assumed levels of demand, and (2) quantifying the response to added efforts aimed at increasing timber yields. The guideline suggested for use in the Southeast is a "recent trends" projection made in conjunction with the 1970 Timber Review (table 1).

Table 1.—Prospectively available removals of growing stock and sawtimber,¹ by softwood and hardwood, by ownership class, 1970-2020

Ownership class	Species group	Removals in 1970	Prospectively available in --		
			1980	2000	2020
GROWING STOCK ¹ In million cubic feet					
National Forest	Softwood	35	60	114	162
	Hardwood	26	38	66	79
	Total	61	98	180	241
Other public	Softwood	53	76	106	102
	Hardwood	20	34	53	50
	Total	73	110	159	152
Forest industry	Softwood	359	483	688	713
	Hardwood	161	200	290	301
	Total	520	683	978	1,014
Other private	Softwood	1,343	1,513	1,866	1,811
	Hardwood	850	1,045	1,327	1,289
	Total	2,193	2,558	3,193	3,100
All ownerships	Softwood	1,790	2,132	2,774	2,788
	Hardwood	1,057	1,317	1,736	1,719
	Total	2,847	3,449	4,510	4,507
SAWTIMBER In million board feet International 1/4 inch rule					
National Forest	Softwood	142	252	531	794
	Hardwood	110	132	229	295
	Total	252	384	760	1,089
Other public	Softwood	188	270	405	387
	Hardwood	48	79	116	111
	Total	236	349	521	498
Forest industry	Softwood	1,223	1,620	2,348	2,435
	Hardwood	451	567	617	640
	Total	1,674	2,187	2,965	3,075
Other private	Softwood	4,240	4,847	5,974	5,801
	Hardwood	2,330	2,602	2,467	2,394
	Total	6,570	7,449	8,441	8,195
All ownerships	Softwood	5,793	6,989	9,258	9,417
	Hardwood	2,939	3,380	3,429	3,440
	Total	8,732	10,369	12,687	12,857

¹ That portion of growing stock which is suitable for the production of saw logs

THE DEDUCTIVE PROCESS

The first step in identifying the opportunities for adding to timber output through more intensive tim-

ber culture involved some breakdown of the forest base into meaningful silvicultural or management classes. Some 3.2 million acres classified as noncommercial forest were excluded, whereas an estimated 2.4 million acres of idle cropland were included in the study under the assumption that part of these lands represented an opportunity for increasing future timber supplies. With these adjustments, the study included more than 92.1 million acres, of which 89.8 million acres were classified as commercial forest (table 2).

Table 2.—Area by broad management and ownership class, Southeast, 1970

Management class	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
Thousand acres					
Idle cropland	2,353.7				2,353.7
Nonstocked forest	3,960.6	84.6	330.4	692.6	2,853.0
Pine plantations	8,144.5	245.5	393.0	3,841.2	3,664.8
Natural pine stands	28,402.2	1,275.2	1,227.9	6,217.3	19,681.8
Oak-pine stands	13,054.7	634.1	506.0	1,960.8	9,953.8
Upland hardwood stands	22,828.8	2,160.5	580.4	1,929.8	18,158.1
Bottomland hardwood stands	13,406.6	231.4	351.5	3,142.4	9,681.3
Total area	92,151.1	4,631.3	3,389.2	17,784.1	66,346.5

¹ Includes lands under long-term lease.

Initially, a rather detailed breakdown of the commercial forest area by forest type, stand size or stand age, site class, and ownership class was considered. Such a breakdown was recognized as the logical approach to the task and would be required if optimum use was to be made of research data available on silvicultural practices and timber management. Because of the overwhelming number of cells that would be involved in the analyses, however, a decision was made to start from a more general approach that would provide for focusing in on this kind of detail later on in the study after the opportunities had been narrowed through a deductive process.

The second step involved the identification and elimination of areas which obviously had low timber potential because of poor or adverse sites. The logic here was that the limited funds and resources available for the acceleration and intensification of timber culture would not be expended on these marginal lands so long as more promising opportunities were available. The criteria used for screening will vary from region to region and will depend largely upon the data available from the Forest Survey. In the Southeast, all site 5 areas, along with the more adverse physiographic conditions, were eliminated at this stage. Site 5 identified those areas incapable of producing 50 cubic feet of timber per acre annually when fully stocked with trees. The physiographic classes eliminated included the steep, dry mountain

slopes and mountaintops in the Southern Appalachians, deep sands, bays and wet pocosins, and cypress ponds. Altogether, 26.4 million acres were eliminated and reduced the study base to 65.7 million acres (table 3).

Table 3.—Area suitable for intensive timber management, by broad management and ownership classes, Southeast, 1970

Management class	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
Thousand acres					
Idle cropland	2,353.7				2,353.7
Nonstocked forest	946.1	21.8	45.8	262.4	616.1
Pine plantations	7,222.9	225.1	277.8	3,478.8	3,241.2
Natural pine stands	21,556.5	779.1	792.8	4,598.9	15,385.7
Oak-pine stands	9,325.9	193.0	292.4	1,477.0	7,363.5
Upland hardwood stands	14,342.3	677.5	338.0	1,376.6	11,950.2
Bottomland hardwood stands	9,960.6	95.7	248.3	2,311.8	7,304.8
Total area	65,708.0	1,992.2	1,995.1	13,505.5	48,215.2
Percent					
Percentage of totals in table 2	71.3	43.0	58.9	75.9	72.7

At least one significant conclusion which can be drawn from a comparison of tables 2 and 3 at this point is that, with the criteria used, a much higher proportion of the public lands occurs in areas with low or adverse site conditions than occurs in the privately owned lands.

The third step involved another screening of the base Forest Survey information to determine and eliminate those areas already in good condition from the standpoint of timber culture. Here again, the criteria used in this deduction will vary from region to region. In the Southeast, minimum and maximum standards were developed for assessing the level of crop-tree stocking and its competition for each stand represented by a Forest Survey sample with consideration given to such characteristics as forest type, stand size, stand age, volume, and growth. The initial standards were compared with preliminary results of a management prescription study being tested in conjunction with the fourth Forest Survey in Georgia. Several changes and adjustments were made in what might be described as a fine-tuning process and which also drew upon the knowledge and advice of several specialists in timber management. When the final criteria were applied, they indicated that some 19.3 million acres of the land suitable for intensive timber management were in good enough condition to rule out any major opportunity over the next decade for increasing prospective timber yields. This further reduced the study base to 46.4 million acres (table 4).

Table 4.—Area with opportunities for more intensive management, by broad management and ownership classes, Southeast, 1970

Management class	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
Thousand acres					
Idle cropland	2,353.7				2,353.7
Nonstocked forest	946.1	21.8	45.8	262.4	616.1
Pine plantations	1,908.9	61.4	67.8	969.4	810.3
Natural pine stands	13,383.4	514.9	494.1	2,664.0	9,710.4
Oak-pine stands	7,373.9	168.5	239.9	1,141.6	5,823.9
Upland hardwood stands	11,497.6	588.7	297.6	1,052.7	9,558.6
Bottomland hardwood stands	8,900.8	89.5	229.2	2,094.9	6,487.2
Total area	46,364.4	1,444.8	1,374.4	8,185.0	35,360.2
Percent					
Percentage of totals in table 2	50.3	31.2	40.6	46.0	53.3

The conclusion at this point in the study was that the management decisions made and implemented on these 46.4 million acres over the next decade or so would largely determine the extent which prospective timber supplies in the Southeast could be increased through more intensive timber culture during the remainder of this century. The third step also provided an overall picture of the silvicultural status of these areas. Criteria similar to those used to identify the areas in good condition were developed and applied to further break the 46.4 million acres down into treatment opportunity classes before any consideration was given to the economic efficiency of alternative courses of action.

The analysis indicated that 9.2 million acres were occupied by mature stands ready for harvest and regeneration. Younger, immature stands occupied another 10.7 million acres judged to be overstocked to the extent that future timber yields would be adversely affected without intermediate treatment. On the remaining 26.5 million acres there was inadequate stocking of trees which could be featured in management (table 5). For the most part, these were cutover lands where either no provisions were made for adequate regeneration or regeneration efforts failed. Furthermore, substantial quantities of low-quality timber passed over during the cutting along with inadequate, advanced reproduction exist on many of these acres serving only as obstructions to the establishment of any kind of manageable stand. In other words, these acres will contribute very little to the future timber supply until they are converted, planted, or otherwise regenerated.

Although this analysis dwells largely on the more obvious opportunity of converting the pine lands within the condition described to artificial stands through site preparation followed by either planting

or direct seeding, there is no intent to downgrade or exclude the opportunity for natural regeneration. Where there is an adequate seed source, brush control and seedbed preparation with reliance on natural regeneration is certainly an alternative. On the better hardwood sites, the prevailing opportunity is the natural regeneration of even-age stands of the more desirable hardwood species. For the most part, treatment response data were simply not available for cost-benefit analysis of all the alternatives.

Table 5.—Area suitable for intensive timber management but where there is an absence of a manageable stand, by broad management and ownership classes, Southeast, 1970

Management class	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
----- Thousand acres -----					
Idle cropland	2,353.7		-	-	2,353.7
Nonstocked forest	946.1	21.8	45.8	262.4	616.1
Pine plantations ¹	927.1	40.9	20.3	543.6	322.3
Natural pine stands	4,710.2	191.4	162.2	885.3	3,471.3
Oak-pine stands	4,165.5	95.0	157.4	636.6	3,276.5
Upland hardwood stands	7,544.0	322.3	187.3	706.2	6,328.2
Bottomland hardwood stands	5,834.9	37.0	137.5	1,239.8	4,420.6
Total area	26,481.5	708.4	710.5	4,273.9	20,788.7
----- Percent -----					
Percentage of totals in table 2	28.7	15.3	21.0	24.0	31.3

¹ Estimated acreage in pine plantations with poor survival and plantations severely damaged by fire, insects, disease, etc.

CURRENT LEVELS OF FORESTRY ACTIVITIES

The deductive process served to focus on and to quantify those areas in the Southeast which afford an opportunity for increasing future timber supplies through acceleration and intensification of timber culture practices. Current levels of forest management will certainly absorb some of the opportunities implied in the deductive process. Guidelines are needed, therefore, for estimating the current levels of forestry activities. Hard, reliable information is not available for all of the various activities occurring throughout the region; however, information of past treatment and disturbance is being collected in conjunction with the fourth Forest Survey in Georgia. This information is available for some 17.6 million acres in south and central Georgia and was used to help develop the estimates presented in table 6.

Table 6.—Estimated levels of primary forestry activities, by ownership class, Southeast, 1970

Forestry activity	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
Thousand acres					
Harvesting	1,703.6	41.9	50.2	466.8	1,144.7
Intermediate cutting	1,558.2	22.5	94.6	203.9	1,237.2
Planting	519.1	31.3	23.6	367.1	97.1

Although some 1/2 million acres, primarily pine lands, are being artificially reforested each year under current levels of timber culture, the Georgia study indicates that less than half of this regeneration effort is aimed at reducing the backlog of 26.5 million acres described in table 5. In other words, over half of the current artificial reforestation effort is being used to regenerate stands now being harvested. Furthermore, conditions which exist on most of the accumulation of cutover, poorly stocked, and idle acres described in table 5 rule out the prospects for any substantial improvement through natural regeneration unless brush control and site preparation practices are used to supplement the process. The answer to the problem calls for a substantial acceleration in the current rate of artificial reforestation, along with more extensive application of those practices which will enhance natural regeneration. Because rough trees, rotten trees, and other inhibiting vegetation occupy most of these areas, conversion and site preparation costs will be large, regardless of the alternative selected.

THE ROLE OF PLANTING

Over the past 20 years, one of the major efforts put forth to augment timber supplies in the Southeast has been tree planting. Altogether, some 10 million acres have been planted, mostly with slash and loblolly pines. A recent summary of Forest Survey statistics for an extensive area, including all of northern Florida, southern Georgia, and the southern coastal plain of South Carolina, showed that two out of every five slash pine trees 1.0 inch d.b.h. and larger in the inventory had been planted. Many of these trees are still below merchantable size but forest industry, particularly the pulp industry, is counting very heavily on these plantations as a source of wood in the years ahead. In many parts of the region the total cut coming from plantations can be expected to increase from a mere trickle to a steady stream before the end of the century.

Many of the advantages of plantations over natural stands are obvious. Plantations enable the land manager to exercise greater control over species composition and spacing, and promise greater yields over shorter periods of time. The trees are more uniform in size and merchantable length which can be a real advantage at time of harvest. Plantations also open up the opportunities afforded by genetic improvement, site preparation, and fertilization.

These manmade forests do have some rather subtle shortcomings. Generally, the economics of the in-

vestments involved in tree plantations suggest the use of short rotations, and most of the pine plantations in the Southeast will probably be harvested within 30 years of their establishment. As greater reliance is placed on these plantations as a source for timber, the wood industries will be manufacturing their products from a somewhat different kind of tree from what they have been accustomed to using. The average tree will probably be younger and its wood less dense. This implies that the pulp industry might have to process a greater quantity of wood per unit of output. Lower chemical requirements and processing costs per unit might compensate for this factor. Smaller trees and less dense wood present a more formidable problem to the lumber and plywood producers. Before these industries can realize the full benefits offered by plantation management, it would seem that site preparation and plantation establishment costs would have to be reduced to a level that would enable the land manager to carry the trees over a longer rotation.

One of the roles of tree planting has been to move idle acres into the productive forest base. In 1950, an estimated 5.8 million acres of idle, abandoned, or surplus cropland had accumulated in the Southeast as the result of the agricultural revolution that swept the region in the wake of a rural-to-urban migration. Over time, many of these acres reverted naturally to forest but many of the stands which evolved fell far short of the potential had these acres been planted. Often, when an old field seeded in, it did so from a seed source along the edges and rarely was it uniformly or adequately stocked.

During the late fifties more than 1.3 million of the idle acres were planted with trees through the Conservation Reserve Soil-Bank Program. Although mistakes were made in some of these plantings and the value of their contribution to the timber supplies can still be argued, the program stands as an example of positive action. When the program was at its height, more than 830,000 acres within the region were planted with trees during a 1-year period—a record that still stands.

The level of tree planting in the Southeast has now dropped to about 500,000 acres annually, and only about 15 percent of this is on nonforest land. An estimated 25 percent of the planting effort is directed toward the backlog of poorly stocked forest lands in need of conversion. This means that about 60 percent of the planting is being used to regenerate stands following the harvesting of timber.

There is a greater role for planting to play in each of the three conditions described: idle land, the backlog of poorly stocked forest, and the stands now being harvested. There are still some 2.4 million acres of idle cropland in the region and the backlog of poorly stocked stands in need of conversion is estimated in this analysis to total 24.1 million acres. At least 500,000 acres are being cut over each year without any provision for adequate regeneration.

Undoubtedly, some of the acres described are tied up in estates, owned by land speculators, broken up in very small parcels, or are otherwise unavailable for intensive forest management; however, the fact remains that vast opportunities still exist in the Southeast for boosting future timber supplies through the planting of more trees.

COST OF FORESTRY PRACTICES

A study by Yoho, Dutrow, and Moak (10) provided estimates of the costs of practicing forestry in the South as of 1967 with trends since 1952. Based largely upon an extrapolation of those estimates and information from other sources, the following estimated average cost of forestry practices and related items for the Southeast in 1970 were developed:

<i>Practice or item</i>	<i>Cost (Dollars)</i>
Establishment of pine plantation on	
Cutover lands:	
Site preparation	28.25 per acre
Pine seedlings	5.25 per thousand
Insecticide treatment of seedlings*	0.50 per thousand
Planting	0.02 per seedling
Total average establishment cost	44.75 per acre
Other practices:	
Prescribed burning	2.05 per acre
Poisoning undesirable trees	11.30 per acre
Girdling undesirable trees	9.65 per acre
Release cutting of young growth	15.50 per acre
Timber cruising, (10%)	0.90 per acre
Marking trees for harvesting	3.60 per acre

*For protection against weevils.

Obviously, one of the key cost figures in the Southeast is the average cost of establishing a pine plantation. On some of the idle and open areas where extensive site preparation is not involved, pine plantations can be established at about half the average cost estimated above. Most of these easy planting opportunities have already been exhausted, however, and attention now must be largely focused on those lands that can only be restored through site preparation or type conversion. The 1970 estimate of \$44.75 per acre on the average is somewhat higher than the \$40.00 per acre estimated by McClay in 1969 and used by Anderson and Guttenberg(2). The difference is probably consistent with the increasing cost of labor and certainly does not detract from the investor's guide to converting oak-pine and low-value, upland hardwood stands prepared by Anderson and Guttenberg. Faced with ever-rising costs, it is probably more important that the potential investor has available guidelines for determining how much he is justified in spending and still receive an acceptable return on his investment.

POTENTIAL PLANTATION YIELDS

The potential yields of pine plantations vary, depending on site, species, density, and age. Loblolly pine and slash pine are the two principal species planted in the Southeast. The yields presented for slash pine (table 7) are based on tables developed by Bennett and Clutter (4). The yields presented for loblolly pine (table 7) are based on similar tables developed by Lenhart.² In table 7, an initial spacing of 8 by 8 feet, or about 680 trees per acre, is assumed. This spacing assumes a multiple-product objective. Where the objective is to grow only sawtimber, a wider spacing is suggested. Readers of this report are cautioned that the yield tables presented are based on old-field plantations and generally overestimate the yields which can be expected from natural woodland sites. We took this fact into consideration, along with the expected natural losses, in the economic analysis presented later in this report.

An examination of the yield tables emphasizes the importance of site consideration in this kind of analysis. The potential yields from pine plantations at the end of 30 years are from 35 to 40 percent greater for the good sites than for the medium sites. The next logical step, therefore, was to break the

²Lenhart, J. D. Yield of old-field loblolly pine plantations in the Georgia Piedmont. 1968. (Unpublished doctoral dissertation on file at Sch. For. Resour., Univ. Ga., Athens.)

area described in table 5 into the two site classes required to enter the yield table presented (table 7).

Table 7.--Yields of unthinned slash and loblolly pine plantations

SLASH PINE			
Age at harvest years	Volume harvested per acre		
	All trees as pulpwood <u>Cords</u>	Multiple products	
		Pulpwood <u>Cords</u>	Sawtimber <u>Bd. ft.</u>
<u>MEDIUM SITE</u>			
20	22.5	22.5	
25	25.1	15.3	3,627
30	29.8	16.0	5,360
<u>GOOD SITE</u>			
20	32.7	24.7	3,085
25	35.0	17.0	7,297
30	41.3	17.5	9,924
LOBLOLLY PINE			
<u>MEDIUM SITE</u>			
20	29.2	28.8	184
25	39.4	35.2	2,388
30	47.8	38.0	5,126
<u>GOOD SITE</u>			
20	41.0	35.4	2,928
25	54.6	37.5	8,594
30	64.8	37.5	13,293

Site information collected in the Forest Survey was available for separating the commercial forest land, but not idle cropland. Thus, an assumption was made that half of these idle acres occurs on good sites and half on medium sites (table 8).

Table 8.--Estimated area of good and medium sites suitable for intensive timber management but where there is an absence of a manageable stand, by broad management and ownership classes, Southeast, 1970

GOOD SITES					
Management class	All ownerships	Ownership class			
		National Forest	Other public	Forest industry	Other private
Thousand acres					
Idle cropland	1,176.8				1,176.8
Nonstocked forest	126.2			70.8	55.4
Pine plantations	111.7			92.4	19.3
Natural pine stands	1,084.8	44.0	29.2	247.9	763.7
Oak-pine stands	1,125.3	37.1	18.9	184.6	884.7
Upland hardwood stands	1,295.8	83.8	30.0	169.5	1,012.5
Bottomland hardwood stands	1,992.3	3.0	57.8	384.3	1,547.2
Total area	6,912.9	167.9	135.9	1,149.5	5,459.6
MEDIUM SITES					
Idle cropland	1,176.9				1,176.9
Nonstocked forest	819.9	21.8	45.8	191.6	560.7
Pine plantations	815.4	40.9	20.3	451.2	303.0
Natural pine stands	3,625.4	147.4	133.0	637.4	2,707.6
Oak-pine stands	3,040.2	57.9	138.5	452.0	2,391.8
Upland hardwood stands	6,248.2	238.5	157.3	536.7	5,315.7
Bottomland hardwood stands	3,842.6	34.0	79.7	855.5	2,873.4
Total area	19,568.6	540.5	574.6	3,124.4	15,329.1

THE ROLE OF THINNING

Bennett has concluded that in the management of slash pine plantations, the role of thinning is changing from the traditional concept associated with this silvicultural tool as developed in natural stands (3). In fact, for pulpwood production many owners are selecting spacings that will not require thinning during the rotation. Others insist that thinning must be financially advantageous even in pulpwood rotations, because of the early recovery in establishment costs. Length of rotation is also a question, and early liquidation may be a temptation to those unaware of production rates at various ages.

Based on his study, Bennett concludes that in slash pine plantation management, product objective should determine initial spacing; and, in rotations of short to medium length, thinning should play a secondary role, mostly as a sanitation and salvage measure, and not be viewed as essentially a growth regulator or product developer. On the other hand, in all-purpose management that includes both small and large products, thinning will of necessity play its traditional role in the maintenance of stand vigor and diameter growth.

Of course, in natural stands, thinning is the primary means for controlling density and the fact remains that most southern pine stands are still reproduced naturally. In many instances it is unwise to wait and rely exclusively on commercial thinning to regulate stand density. Particularly in dense young loblolly pine stands, there is a danger of stagnation. Guttenberg has stated the case for precommercial thinning for this species (7). He concludes that delaying precommercial thinning can sharply reduce growth response and greatly increase the cost. His study suggests that thinning should be done by mowing seedlings at age 2 or 3, when fire hazard is minimal and costs are low. From an investment of no more than \$5.00 per acre, roughly 10 additional cords can be realized.

Of the 10.7 million acres of young, immature stands identified in the Southeast as being overstocked to the extent that future timber yields would be adversely affected without intermediate treatment, a commercial thinning opportunity exists on 7.8 million acres. On the remaining 2.9 million acres, a precommercial thinning or cleaning would be required to correct the overstocking problem. These are probably conservative estimates of the thinning opportunities.

THE ROLE OF PRESCRIBED BURNING

Several major benefits are currently recognized from prescribed burning in the Southeast and include hazard reduction, hardwood and brush control, reduced harvest cost, slash disposal, and site preparation. Cooper points out that prescribed burning has contributed significantly to the reduction in wildfire losses (6). For example, in the pine flatwoods of Georgia and Florida, wildfire burn percentages amounted to less than 0.1 percent when sound prescribed burning programs were carried out. Where prescribed burning was not employed, 7 percent of the forest acreage was burned during the same time period.

Cooper further concludes that fire is a preferred treatment because of its low cost, compatibility with other land-use objectives, and because it accomplishes several management objectives at one time. It is not unusual, for example, for a single hazard reduction burn to also improve seedbed conditions, enhance wildlife and range habitats, and control undesirable tree competition. Without this vital tool, foresters would be confronted with unbearable management costs, an intolerable fuel situation that would most assuredly lead to catastrophic wildfires, and a general decline in the productivity of the forest resource.

Although smoke and other products of combustion are integral parts of a fire prescription and are often looked upon as pollutants, the benefits of the practice must be given careful consideration in any regulative policy. Cooper estimates that a suspension of prescribed burning might result in a sixfold increase in the acreage ravaged by wildfire in the South.

IMPROVED PROTECTION OPPORTUNITIES

The potential plantation yield table in this report does not reflect the probable losses to poor survival, fire, disease, and insects. These losses can be substantial and certainly one of the opportunities for increasing future timber supplies is to intensify efforts to hold these losses to a minimum.

Based upon the latest Forest Survey findings, annual mortality losses in the Southeast exceed 500 million cubic feet in merchantable timber each year and reduce gross growth by an estimated 10 to 12 percent. Impact studies are needed for each of the major causes of mortality before guidelines can be established for measuring the relative economic effi-

ciencies of adding to the prospective timber supplies through more intensified protection efforts.

In the Southeast, fusiform rust is one of the major damaging agents for both loblolly pine and slash pine. Many of the plantations have been particularly susceptible to this disease. For example, a study indicates that about 12 percent of all slash pine trees 1.0 inch and larger at d.b.h. in plantations in northern Florida, southern Georgia, and southwestern South Carolina have fusiform cankers on the main stem. In natural slash pine stands, the comparable rate of incidence is below 5 percent. The same study indicates that the percentages are even higher for loblolly pine—about 20 percent in plantations and 10 percent in natural stands. These are statistics on incidence within the existing inventories and do not account for the actual mortality losses. The most promising control measure for fusiforme is the development of more resistant planting stock through genetic improvement.

Reproduction weevils are another serious hazard to pine plantations in the Southeast. When pine is harvested from July to March and the area is planted shortly thereafter, weevils feed on the young trees and can cause their death. According to Speers, weevil-caused mortality of plantations established following harvest during this period ranges from a few to 100 percent but averages about one-third.³

For reproduction weevils, two control measures are suggested: (1) allow the planting site to lie fallow for one year or more before planting, or (2) treat the seedlings with an insecticide. Given these two choices, with the estimated cost of treating seedlings shown in an earlier tabulation, the latter measure would seem to be favored. The alternative would involve one year's growth loss.

In 1969, Hodges reported that *Fomes annosus*, or root rot, was present in 59 percent of the loblolly pine plantations and 44 percent of the slash pine plantations surveyed in the Southeast (8). The same survey, however, indicated that overall losses to the disease were relatively small. Only 2.8 percent of the trees in loblolly pine plantations, 2.2 percent in slash plantations, and 0.07 percent in natural slash pine stands were dead or dying from the disease. In a few thinned plantations, however, up to 30 percent of the trees were dead or dying. Three control meas-

ures for annosus root rot are recommended: (1) chemically treat stump surfaces immediately after felling, (2) confine thinnings to the summer season when high temperatures tend to reduce infection and fewer spores are being released, and (3) inoculate the stumps with the saprophytic wood-decaying fungus *Peniophora gigantea*. The latter measure was originally developed in England and is effective in the Southeast. Methods of application and spore concentrations have been determined. A commercial source of inoculation is now available, and this treatment should compare favorably in cost and effectiveness with borax. Studies are now underway to develop accessories to mechanical tree harvesters for automatically treating stumps.

A host of bark beetles plagues the southern pines with the southern pine beetle generally accepted as the most destructive of all the insects. Southern pine beetles usually attack the mid trunk of a tree first, then "fill in" both upward and downward (9). While larger trees are more commonly attacked, trees as small as 2 inches in diameter also may be infested. Salvage is the cheapest and often the most practical form of control. In salvage operations, trees containing beetle broods should be removed first and promptly because the primary objective is to reduce the beetle population to the lowest possible level as rapidly as possible.

Finally, general protection against wildfire is an essential part of forest management. There has been commendable achievement in the reduction of fire losses in the Southeast, but the cost has been high. Over 95 percent of the forest lands in the region are now protected and the percentage of the protected area burned annually has been reduced to below 0.5 percent. According to the report of the Southern Forest Resource Analysis Committee in 1969, cost of fire control in the South averaged about 16 cents per acre protected in 1967. Overall costs for general fire protection ranged up to 50 cents per acre in the Southern Coastal Plain (10). Of course, it is unfair to charge off all of this protection cost against timber values alone. Recognition must also be given to the air, water, forage, soil, wildlife, and recreation values.

IMPROVED UTILIZATION OPPORTUNITIES

Another way to increase future timber supplies is through improved and more complete utilization of the prospective supplies. In other words, the objective

³Speers, C. F. Impact of weevils on pine reproduction in the South. 1972. (Unpublished progress report on file at Southeast. For. Exp. Stn., USDA For. Serv., Asheville, N. C.)

would be to achieve a higher product output from the available or allowable cut. Giant strides have already been made toward improved timber utilization in many areas; however, the most recent Forest Survey findings estimate that up to 12 percent of the total softwood and 43 percent of the total hardwood removal of growing-stock volume is not used for products. With these percentages, we are talking about over 650 million cubic feet of merchantable timber each year. Land clearing, cultural treatments, and the withdrawal of forest land from the commercial base account for about half of this removal and perhaps there is little opportunity for significantly reducing this type of drain. The other half, however, represents the annual estimate of logging residue and woods waste. Here again, some minimum amount of waste must be tolerated; however, if only half of this wood fiber could be channeled into use, the annual output of timber products could be increased by over 5 percent without increasing timber removals.

In addition to the unused volume in trees cut or destroyed, the volume left standing in rough and rotten trees is a form of residue in the broad sense. Because of high grading, or the removal of only the better trees at time of harvest, an inventory of over 11.5 billion cubic feet of this timber has accumulated. As much as three-fourths of this material is usable for pulpwood and other fiber products; however, once these trees were left as residuals, the opportunity for their utilization was greatly diminished because their low value will not fully compensate for the cost of removal. The most logical long-term solution is to minimize the further accumulation of poor quality timber in the inventory through improved forest management and harvesting practices. In the meantime, attention should also be focused on ways to remove, market, and utilize a greater proportion of the low-value volume already in the inventory. It is estimated that less than 195 million cubic feet of the total output of roundwood products came from this source in 1970.

Another way to improve utilization is to be more selective in the use of the better quality timber for those products which require such input. For example, the Forest Survey findings indicate that over 20 percent of the total volume of sawtimber removed from the inventory in the Southeast each year is used for pulpwood. Of course, the markets available in a particular area largely determine the kind of products for which the timber is used; nevertheless, this heavy use of sawtimber for a fiber product seems somewhat inconsistent with the current concern over the supply of sawtimber for lumber and plywood.

GENETIC IMPROVEMENT AND FERTILIZATION

Faced with a shrinking forest base, timber managers in the Southeast will need to focus greater attention on those opportunities for increasing yields per acre through the development of genetically improved planting stock and the application of fertilizers to enhance soil fertility. The research results on genetic improvement are particularly encouraging. There are already more than 6,000 acres of pine seed orchards in the South and it is estimated that the genetic gains from first-generation stock will average from 15 to 20 percent in terms of volume growth for both slash pine and loblolly pine. An additional 15- to 20-percent gain from second-generation stock is well within expectations.

These seed orchards represent a tremendous investment and their value to the annual regeneration program justifies the most intensive protection. At the Forestry Sciences Laboratories in Athens, Georgia, and Olustee, Florida, scientists are finding ways to reduce seed losses in the orchards. The production potential in seed orchards of loblolly pine is reduced by one-third by cone and seed insects. These insects greatly increase the costs of producing genetically superior trees. Without adequate controls, the size and cost of second-generation orchards will have to be increased by 50 percent to supply the needed quantity of sound seed.

In the case of fertilization, one of the goals is to gain through research a better understanding of the physical and chemical factors that affect soil fertility in the forests. This knowledge will be used to develop practical, effective, and economic schedules for managing the soil organic matter and for applying fertilizers to improve forest growth and vigor. The research also includes studies of the impact of these added nutrients on long-term soil productivity and their effect on streams, lakes, and wildlife habitat (5).

POTENTIAL TIMBER-GROWING CAPABILITY

The opportunities to increase prospective timber supplies in any particular region of the Nation are not endless. Superimposed on the total accumulation of opportunities that can be identified is some potential quantity which cannot be exceeded. Although this quantity cannot be precisely determined for the Southeast, the Forest Survey information on site capability provides a reasonable measure which can serve as a guideline.

As the population continues to increase and the competition for land grows more intense, possibilities for expanding the timber-growing base beyond the 92.1 million acres considered in this study are unlikely. In fact, a 5-percent reduction in the commercial forest base over the next 50 years was assumed in the baseline projection presented in table 1. This is perhaps a conservative estimate of the reduction considering the recent trends and mood of the Nation. If we accept these assumptions, then the timber-growing capability of the 92.1 million acres, based on the Forest Survey site classifications, should serve as a potential guideline. This procedure would set the potential net annual growth of timber in the Southeast at just under 6.9 billion cubic feet. This figure does not include the possible gains that can be achieved through genetic improvement and fertilization discussed earlier in this report; however, one might assume that such gains will at least be partially offset by the likely decline in the forest acreage base.

Both the current and prospective estimates of annual timber growth in the Southeast are well below this estimate of potential growth. Based on the 1970 Timber Review, net annual growth of growing stock totaled just over 4.0 billion cubic feet, with annual removals estimated at over 2.8 billion cubic feet. In the prospective or baseline projection, growth and removals just about come into balance at 4.5 billion cubic feet. The conclusion, therefore, is that the potential timber-growing capability of the region is more than 50 percent above the prospective growth that will be achieved with a continuation of recent trends in timber management and is almost 2.5 times greater than the 1970 level of removals.

The estimates established for current, prospective, and potential annual growth are presented by the four broad ownership classes for the major treatment opportunity classes determined in the deductive process (tables 9 - 12). The time frame involved is the 50-year period from 1970 to 2020. Any reduction of the difference between the prospective and potential yields over this period will largely depend upon the degree of acceleration and intensification in timber culture implemented within the next 10 to 20 years.

The results clearly point out that within each ownership class there is a large accumulation of idle, nonstocked, or poorly stocked acres in need of planting, conversion, or regeneration. Collectively, these lands add up to almost 26.5 million acres. It is estimated that current levels of regeneration on such lands will reduce this accumulation by no more than 2 million acres over the next 10 years.

Table 9.—Area by treatment opportunity class with average volume of growing stock per acre and estimates of current, prospective, and potential annual growth, National Forests, Southeast, 1970

Treatment opportunity class	Class acreage	Volume of growing stock	Estimated annual growth		
			Current	Prospective	Potential
M acres		Cubic feet per acre			
Poor or adverse sites	2,639.1	1,014	37	45	57
Stands in good condition	547.4	800	59	77	85
Harvesting	421.4	2,097	76	89	89
Intermediate cutting	315.0	1,628	84	93	96
Conversion or regeneration	708.4	968	37	58	85
All classes	4,631.3	1,122	46	58	70

Table 10.—Area by treatment opportunity class with average volume of growing stock per acre and estimates of current, prospective, and potential annual growth, other public, Southeast, 1970

Treatment opportunity class	Class acreage	Volume of growing stock	Estimated annual growth		
			Current	Prospective	Potential
M acres		Cubic feet per acre			
Poor or adverse sites	1,394.1	615	29	30	45
Stands in good condition	620.7	698	50	65	80
Harvesting	279.0	2,466	79	85	85
Intermediate cutting	384.9	1,696	88	88	88
Conversion or regeneration	710.5	819	30	42	82
All classes	3,389.2	948	44	50	67

Table 11.—Area by treatment opportunity class with average volume of growing stock per acre and estimates of current, prospective, and potential annual growth, forest industry,¹ Southeast, 1970

Treatment opportunity class	Class acreage	Volume of growing stock	Estimated annual growth		
			Current	Prospective	Potential
	<i>M acres</i>		<i>Cubic feet per acre</i>		
Poor or adverse sites	4,278.6	614	30	30	50
Stands in good condition	5,320.5	457	43	72	83
Harvesting	1,825.6	2,230	74	89	89
Intermediate cutting	2,085.5	1,233	85	86	86
Conversion or regeneration	4,273.9	660	26	29	84
All classes	17,784.1	817	44	55	76

¹Includes lands under long-term lease

Table 12.—Area by treatment opportunity class with average volume of growing stock per acre and estimates of current, prospective, and potential annual growth, other private, Southeast, 1970

Treatment opportunity class	Class acreage	Volume of growing stock	Estimated annual growth		
			Current	Prospective	Potential
	<i>M acres</i>		<i>Cubic feet per acre</i>		
Poor or adverse sites	18,131.3	602	29	30	47
Stands in good condition	12,855.0	572	48	74	83
Harvesting	6,621.5	2,006	72	90	90
Intermediate cutting	7,950.0	1,286	77	86	88
Conversion or regeneration	1 20,788.7	643	29	33	84
All classes	66,346.5	831	43	52	75

¹Includes 2,353,700 acres of idle cropland

FOREST OWNERSHIP LIMITATIONS

After guidelines are established for identifying and evaluating the various opportunities available for increasing the timber supplies, the task then will be to initiate and implement those actions and programs deemed most efficient for achieving whatever timber goals are set forth. One of the most perplexing problems which forestry planners and policymakers must cope with in the Southeast is the region's complex pattern of forest ownership. For example, there are over 700,000 private, nonindustrial landowners who collectively possess over 70 percent of the land included in this study. For the most part, these lands are in small tracts and the average owner tenure is short from the standpoint of long-term forestry investments. These people own land for various reasons and it has been concluded that no forestry program has ever really caught on within this owner class. New approaches must be devised if forest management is to be intensified on a majority of these lands, and substantial incentive costs may be required in addition to the costs of the actual forestry practices needed before any real gains can be achieved.

The 17.8 million acres of commercial forest land owned or leased by the forest industries represent the second leading source of timber supply in the Southeast. Most of these lands are in large holdings managed by the pulp and paper companies on short rotations for maximum fiber yields. Unlike the private, nonindustrial owners, these companies have direct control not only over growing the timber, but also of the harvesting and processing of the timber into a wide variety of consumer products. Although the backlog of poorly stocked lands in need of conversion or regeneration is not nearly as large on the industry lands as on the other private lands, it is still large. One might assume that the management deficiencies on the industrial holdings will be corrected over time. Within a particular company, however, there is competition for the available funds. Specific forestry investments are not only compared with other alternative forestry investments, but against all other opportunities, some of which promise a very high payback or return (1). Here the forest investment comes down to a matter of economic justification.

Next we come to the publicly owned forest lands--4.6 million acres of which are on the National Forests in the Southeast. These lands are in large tracts and are an important source of timber in the localized areas where they are concentrated. Because of the long rotations practiced in the management of tim-

ber on the National Forests, they are particularly important from the standpoint of the sawtimber supply. Conceivably, any timber management deficiency in this particular ownership could be corrected directly through changes in policy, regulation, or funding as required. The primary objective of forest management on these lands, however, is not to maximize either profit or volume of timber, but to grow the maximum amount of timber the land is capable of producing under a multiple use concept where full consideration is given to wildlife, recreation, watershed, and all the other forest values. This multiple use concept often involves modification of some conventional timber management practices. There are also strong public pressures for additional constraints on timber production on the National Forests. These pressures, together with the fact that many of the lands on the National Forests are poor sites, could diminish the opportunities for timber gain.

Finally, there are 3.4 million acres of other publicly owned lands scattered throughout the Southeast which are classified as commercial forest. About half are associated with military or defense installations; however, this ownership class includes a hodgepodge of local, State, and Federal agencies. Some of the most intensive timber management is found within this class but a diversity of land management objectives confronts efforts to accelerate timber culture.

ADDITIONAL OPPORTUNITY ON OTHER PRIVATE LANDS

In spite of the many problems and limitations which confront efforts to increase prospective timber supplies through the acceleration of improved forestry practices on the private, nonindustrial lands, it is logical that attention focuses on this ownership class. The deductive process indicated that 35.4 million acres suitable for intensive timber management in this ownership class presented treatment opportunities. The breakdown of this total showed 6.6 million acres with mature stands ready for harvest; 8.0 million acres with immature, overstocked stands in need of thinning or other stand improvement; 18.2 million acres with poorly stocked stands in need of conversion or regeneration; and 2.6 million acres of open land suitable for planting.

Because this analysis approaches the timber issue from the standpoint of opportunities for acceleration, one pertinent question is, how much of this backlog of treatment opportunity will be reduced over the

next 10 years without any acceleration? For the purpose of illustrating the procedures presented in this paper, a measure of the various forestry practices on other private lands over the past 10 years available for only south and central Georgia was expanded to represent the entire Southeast. This rather optimistic assumption about the accomplishment expected over the next 10 years without any significant acceleration suggests that additional opportunities will remain on more than 19.6 million acres (table 13).

Table 13.—Area of additional opportunity for more intensive timber culture, by management and condition class, other private, Southeast, 1970

Management class	Condition class	Total area available in 1970	Assumed reduction over next 10 years	Additional opportunity
Thousand acres				
Idle cropland	Open	2,353.7	882.6	1,471.1
Nonstocked forest	Open	201.7	74.9	126.8
	Occupied	414.4	153.8	260.6
Pine plantations	Mature	27.6	27.6	—
	Overstocked	460.4	396.3	64.1
	Poorly stocked	322.3	117.5	204.8
Natural pine stands	Mature	2,180.6	2,180.6	—
	Overstocked	4,058.5	3,493.8	564.7
	Poorly stocked	3,471.3	1,265.9	2,205.4
Oak-pine stands	Mature	999.2	999.2	—
	Overstocked	1,548.2	1,231.2	317.0
	Poorly stocked	3,276.5	164.7	3,111.8
Upland hardwood stands	Mature	1,882.1	1,882.1	—
	Overstocked	1,348.3	1,149.7	198.6
	Poorly stocked	6,328.2	23.6	6,304.6
Bottomland hardwood stands	Mature	1,532.0	1,532.0	—
	Overstocked	534.6	148.0	386.6
	Poorly stocked	4,420.6	—	4,420.6
All classes		35,360.2	15,723.5	19,636.7

The reader must understand that we are attempting to analyze a dynamic rather than a static situation. For example, as existing opportunities are reduced or exhausted, additional opportunities are being created. Nevertheless, the results emphasize that the largest additional opportunity in terms of number of acres will be the conversion and regeneration of poorly stocked stands which require relatively high investments. If the recent trends in the rates of forest treatment in south and central Georgia are expanded to represent the entire region, all of the backlog of available harvest opportunity on other private lands could be exhausted over the next 10 years. The same trends also suggest that up to 80 percent of the existing backlog of thinning and other intermediate treatment opportunities could disappear without any acceleration. In contrast to the progress expected in harvesting and thinning, less than a 15-

percent reduction is expected in the backlog of planting and reforestation opportunities.

RANKING THE ADDITIONAL OPPORTUNITIES

These procedures are aimed at going beyond the identification and measurement of additional opportunities to the extent that guidelines might be developed for ranking the additional opportunities in descending order of economic efficiency. Again, the focus is on the other private ownership class and on only those lands suitable for growing pine. These criteria reduce the additional opportunity of 19.6 million acres shown in table 13 to 14.6 million acres. The deliberate elimination of some 5.0 million acres of hardwood from the ranking process should in no way be interpreted as a downgrading of the importance of hardwoods in the Southeast. Although the primary timber issue in the Nation at this particular point in time is a concern over inadequate supplies of softwood sawtimber in light of the increasing demand for lumber and plywood, the main reason for excluding the hardwoods in many parts of this analysis is the lack of data and information.

There are a number of economic indicators available for ranking the additional pine opportunities. One indicator is the estimated cost of treating an average acre within each of the management and condition classes (table 14). The range in cost is from less than \$10 to almost \$60 per acre. This particular ranking would serve as a guideline if the objective were to increase the prospective pine yields on the maximum number of deficient acres. It does not, however, provide any measure of the relative returns from the investments and therefore is probably the least useful of all the indicators.

The second indicator examined was the increase in mean annual increment (m.a.i.) of timber per dollar of total cost of treatment (table 15). Here the ranking was by cubic feet of increase per acre treated. This kind of ranking is superior to the cost ranking because it provides a measure of what each dollar will buy; as would be expected, the two rankings differ. Where the concern focuses on the supply of sawtimber rather than the total supply of growing stock, a still better indicator is the increase in mean annual increment expressed in board feet per acre treated (table 16).

Up to this point, all of the rankings have failed

to take into consideration one very important economic factor--the time lag before the returns from the various investments come in. Some of the investments require a longer wait for the returns than others. One widely accepted indicator that takes this factor into consideration is the percent rate of return.

Table 14.--Area of additional opportunity for increasing the prospective supplies of pine ranked by estimated cost of treatment, other private, Southeast, 1970

Management class	Condition class	Treatment	Additional opportunity	Estimated average cost per acre
			Acres	Dollars
Pine plantations	Overstocked	Commercial thinning	26.9	9.20
Natural pine stands	Overstocked	Commercial thinning	429.2	10.20
Pine plantations	Overstocked	Precommercial thinning	37.2	11.20
Oak-pine stands	Overstocked	Commercial thinning	178.3	18.20
Idle cropland	Open	Planting	1,471.1	21.20
Oak-pine stands	Overstocked	T.S.I.	138.7	21.20
Natural pine stands	Overstocked	Precommercial thinning	135.5	23.20
Nonstocked forest	Open	Planting	126.8	26.40
Pine plantations	Poorly stocked	Conversion	204.8	26.40
Nonstocked forest	Occupied	Conversion	260.6	51.40
Natural pine stands	Poorly stocked	Conversion	2,205.4	51.60
Oak-pine stands	Poorly stocked	Conversion	3,111.8	54.60
Upland hardwood stands	Poorly stocked	Conversion	6,304.6	59.60
All classes			14,630.9	49.70

Table 15.--Area of additional opportunity for increasing the prospective supplies of pine growing stock ranked by estimated increase in mean annual increment (m.a.i.) per dollar of total cost, other private, Southeast, 1970

Management class	Condition class	Treatment	Additional opportunity	Increase in m.a.i. per dollar of total cost
			Acres	Cu ft. acre
Natural pine stands	Overstocked	Commercial thinning	429.2	4.4
Idle cropland	Open	Planting	1,471.1	3.5
Nonstocked forest	Open	Planting	126.8	3.4
Pine plantations	Poorly stocked	Conversion	204.8	3.0
Pine plantations	Overstocked	Commercial thinning	26.9	2.9
Nonstocked forest	Occupied	Conversion	260.6	1.9
Pine plantations	Overstocked	Precommercial thinning	37.2	1.8
Oak-pine stands	Poorly stocked	Conversion	3,111.8	1.8
Oak-pine stands	Overstocked	T.S.I.	138.7	1.7
Upland hardwood stands	Poorly stocked	Conversion	6,304.6	1.7
Natural pine stands	Poorly stocked	Conversion	2,205.4	1.6
Natural pine stands	Overstocked	Precommercial thinning	135.5	1.5
Oak-pine stands	Overstocked	Commercial thinning	178.3	0.2
All classes			14,630.9	2.0

Table 16.--Area of additional opportunity for increasing the prospective supplies of pine sawtimber ranked by estimated increase in mean annual increment (m.a.i.) per dollar of total cost, other private, Southeast, 1970

Management class	Condition class	Treatment	Additional opportunity	m.a.i. per dollar of total cost
			Acres	Bd ft. acre
Pine plantations	Overstocked	Commercial thinning	26.9	17.4
Natural pine stands	Overstocked	Commercial thinning	429.2	11.0
Pine plantations	Overstocked	Precommercial thinning	37.2	8.0
Idle cropland	Open	Planting	1,471.1	5.8
Nonstocked forest	Open	Planting	126.8	4.7
Natural pine stands	Overstocked	Precommercial thinning	135.5	4.4
Oak-pine stands	Overstocked	Commercial thinning	178.3	3.6
Nonstocked forest	Occupied	Conversion	260.6	2.4
Upland hardwood stands	Poorly stocked	Conversion	138.7	2.2
Natural pine stands	Poorly stocked	Conversion	6,304.6	2.1
Oak-pine stands	Poorly stocked	Conversion	2,205.4	1.9
Pine plantations	Poorly stocked	Conversion	3,111.8	1.6
			204.8	1.4
All classes			14,630.9	2.7

From the standpoint of economic efficiency, a ranking by this indicator provides the most logical guideline of all (table 17). In this particular analysis, the rates of return on some of the commercial thinning opportunities indicate a disinvestment rather than an investment. The exception for thinning oak-pine stands is explained by the fact that only the increase in pine was considered.

Table 17.--Area of additional opportunity for increasing the prospective supplies of pine ranked by estimated rate of return on investments, other private, Southeast, 1970

Management class	Condition class	Treatment	Additional opportunity	Rate of return ¹
			Acres	Percent
Pine plantations	Overstocked	Commercial thinning	26.9	∞ ²
Natural pine stands	Overstocked	Commercial thinning	429.2	∞ ²
Pine plantations	Overstocked	Precommercial thinning	37.2	7.8
Nonstocked forest	Open	Planting	126.8	7.8
Idle cropland	Open	Planting	1,471.1	7.3
Natural pine stands	Poorly stocked	Conversion	2,205.4	7.1
Pine plantations	Poorly stocked	Conversion	204.8	6.9
Oak-pine stands	Overstocked	T.S.I.	138.7	6.7
Natural pine stands	Overstocked	Precommercial thinning	135.5	6.3
Oak-pine stands	Poorly stocked	Conversion	3,111.8	6.3
Nonstocked forest	Occupied	Conversion	260.6	5.7
Upland hardwood stands	Poorly stocked	Conversion	6,304.6	4.0
Oak-pine stands	Overstocked	Commercial thinning	178.3	Negative
All classes			14,630.9	

¹A 5-percent rate of return was assumed for alternative investment opportunities.

²Disinvestments

PROGRAM IMPLICATIONS

Finally, the full implication of this type of analysis emerges. It can provide planners and policymakers with guidelines for determining the kind and scope of programs required to provide a specified increment in the prospective timber supplies (table 18). For example, if a goal were set to increase the annual growth of pine sawtimber in the Southeast by 500 million board feet by accelerating the treatment of deficient acres in the other private ownership class, the most efficient program according to this analysis would cost an estimated \$167 million. This amount of money would cover the estimated cost of treating some 4.8 million acres which are unlikely to be treated without some acceleration but where all of the investment opportunities involved promise a 6-percent rate of return or better with current costs and prices.

If spread over a 10-year period, this particular program, used only as an example, would involve treating an additional 480,000 acres annually at an average annual cost of \$16.7 million. One might better comprehend the amount of acceleration involved by reviewing table 6 in this report. There, the number of acres within the other private ownership class planted or treated through intermediate cutting in 1970 was estimated at 1.3 million. The program used here as an example, therefore, would represent a 36-percent acceleration.

Short rotations (30 years) were assumed in the analysis and calculation of rates of returns. In other

words, the increased timber which would result from the conversion or establishment of a new stand would be harvested at the end of a 30-year rotation. A 5-percent rate of return was assumed for alternative investment opportunities in bringing the costs and returns to a common point in time. If an "instant growth" concept were assumed, the annual harvest could be stepped up immediately after treatment to the equivalent of the increase in mean annual increment on those additional acres treated. Of course, enough harvesting and thinning opportunities would have to be available at the time of treatment to absorb the step-up in cutting. So long as this condition could be met, the "instant growth" concept would not violate any of the rules of sustained yield. In other words, we could conceivably borrow from today's timber inventory that amount of volume that would be replenished at some point in the future from the response of today's actions. Such a course, however, might invite increases in the price of stumpage.

These same guidelines also indicate that if a goal were set to increase the annual growth of pine sawtimber in the region by 1,500 million board feet instead of the 500 million board feet used in the previous example, the cost of the most efficient program would total almost \$700 million. Some 14 million acres would require treatment and opportunities would have to be included which promise less than a 5 percent return on the investment at 1970 prices. Even if spread over a 10-year period, such a program would involve more than doubling the 1970 rate of timber cultural practice within the other pri-

Table 18.—Summary of guidelines for estimating area, cost, and increases over prospective annual supplies of pine growing stock and sawtimber if additional opportunities are exhausted in the order of estimated rate of return on investment, other private, Southeast, 1970

Management class	Treatment	Rate of return	Cumulative area totals	Cumulative cost totals	Cumulative increase in annual volume of pine	
					Growing stock	Sawtimber
		Percent	M acres	Million dollars	Million cu ft	Million bd ft
Pine plantations	Commercial thinning	8.1	26.9	0.2	0.7	4.3
Natural pine stands	Commercial thinning	8.0	456.1	4.6	20.0	52.5
Pine plantations	Precommercial thinning	7.8	493.3	5.0	20.7	55.8
Nonstocked forest	Planting	7.8	620.1	8.4	32.1	71.5
Nonstocked forest	Planting	7.3	2,091.2	39.6	141.3	252.4
Natural pine stands	Conversion	7.1	4,296.6	153.4	323.3	468.6
Pine plantations	Conversion	6.9	4,501.4	158.8	339.6	476.2
Oak-pine stands	ISI	6.7	4,640.1	161.7	344.6	482.7
Natural pine stands	Precommercial thinning	6.3	4,775.6	164.9	349.3	496.5
Oak-pine stands	Conversion	6.3	7,887.4	334.8	655.1	768.3
Nonstocked forest	Conversion	5.7	8,148.0	348.2	680.6	800.5
Upland hardwood stands	Conversion	4.0	14,452.6	723.9	1,319.3	1,552.0
Oak-pine stands	Commercial thinning	Negative	14,630.9	727.2	1,320.0	1,563.7

Disinvestments.

vate ownership class. The higher the goal the more likely that the available labor, equipment, planting stock, or number of cooperative landowners would become the limiting factor rather than the level of funding.

The implementation of any major program across the other private ownership class would likely require some form of cost-sharing arrangement or other type of incentive to help motivate the landowners involved. If Federal funds were involved, these same guidelines lend themselves to an extension of the analysis to an assessment of various program alternatives from the standpoint of cost-benefits in terms of tax dollars expended.

CONCLUSIONS

This paper represents an effort to illustrate a procedure for identifying and analyzing opportunities for increasing prospective timber supplies. The procedure requires a wide range of input data and involves most forestry disciplines. Essential inputs include a reasonably accurate measure of the extent, condition, productive capability, and the current and prospective treatment of those lands which are to provide the timber and related forest values. Next, the procedure calls for the development of criteria for identifying and ranking those opportunities available for increasing the prospective yields from these lands over time. This step requires the identification of specific treatment opportunities, estimated cost of implementing each treatment, and the likely response in terms of added volume and value.

Although the procedures as presented suggest a ranking of the opportunities on the basis of economic efficiency, planners and policymakers will need to interject social, environmental, and other considerations. In establishing priorities, it is also necessary to measure the possible gains which might be achieved through improved protection and utilization of the existing timber supplies.

Because of obvious deficiencies in many of the inputs used in this particular analysis, this paper is primarily one of procedural presentation. Nevertheless, several conclusions were reached that deserve restatement.

1. The Southeast is one of the Nation's primary timber-producing regions because its forests are currently providing about 8 percent of the plywood, 12 percent of the lumber, and 33 percent of the pulp-

wood produced in the Nation each year.

2. Prospectively available removals of growing stock each year increase from 2.8 to 4.5 billion cubic feet over the next 30 years without any substantial acceleration in timber culture activities.

3. The potential timber-growing capability of the 92.1 million acres in the region now considered available for timber production is estimated at just under 6.9 billion cubic feet annually, excluding possible gains which can be achieved through genetic improvement and fertilization, or almost 2.5 times greater than the 1970 level of removals.

4. More than 70 percent of the 92.1 million acres analyzed are medium to good sites and are considered suitable for intensive timber management. Of the 65.7 million acres judged suitable for intensive timber management, some 46.4 million acres are in need of treatment.

5. Some 35.4 million of the 46.4 million acres in need of treatment are in the private, nonindustrial ownership class. This class includes an estimated 700,000 landowners whose interests in forestry cover the entire spectrum.

6. At best, this backlog of 35.4 million acres that need treatment will be reduced by less than 45 percent over the next 10 years under current levels of timber cultural activities.

7. The additional treatment opportunities within the other private ownership will include at least 14.6 million acres suitable for growing pine. The cumulative increase in annual volume of pine that could result from the proper treatment of these acres is estimated at 1.3 billion cubic feet and would include almost 1.6 billion board feet of sawtimber.

8. Sufficient cost and yield data are available for concluding that over half the additional treatment opportunities on these pine lands promise a 5-percent return or better on the investment costs which would be involved with current stumpage prices.

9. If spread out over a 10-year period, the cost of treating those acres which promise a 5-percent return or better is rather crudely estimated at \$35 million annually.

10. Improved inputs for making this type of analysis would be extremely helpful from the standpoint of long-range planning and forest policy decisions.

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In 1970, the volume of timber removed from commercial forests in the Southeast totaled more than 2.8 billion cubic feet. If recent trends in timber cultural activities continue, prospectively available removals will increase to 4.5 billion cubic feet annually over the next 30 years. This is still well below the region's potential timber-growing capability which is estimated at just under 6.9 billion cubic feet exclusive of possible gains through genetic improvement and fertilization. Procedures are described for identifying and ranking opportunities available for closing the gap between prospective and potential timber supplies.

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SOUTHERN PULPWOOD PRODUCTION, 1973

Thomas R. Bellamy



Forest Service, U. S. Department of Agriculture
Southeastern Forest Experiment Station
Asheville, North Carolina

AUGUST 1974

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**SOUTHEASTERN FOREST EXPERIMENT
STATION**

Asheville, North Carolina

and

**SOUTHERN FOREST EXPERIMENT
STATION**

New Orleans, Louisiana

of the

**Forest Service, U. S. Department of
Agriculture**

in cooperation with the

AMERICAN PULPWOOD ASSOCIATION

1974

Table 2.--Roundwood production in the South, by State and species group, 1973

State	All species	Softwood	Hardwood			
			Total	Gums	Oaks	Other hardwoods
- - - - - Thousand cords - - - - -						
Alabama	5,511.2	3,864.6	1,646.6	430.2	772.0	444.4
Arkansas	1,957.7	1,255.3	702.4	26.3	472.5	203.6
Florida	3,010.0	2,783.1	226.9	72.7	89.0	65.2
Georgia	6,092.1	5,444.2	647.9	229.7	270.9	147.3
Louisiana	3,230.5	2,463.3	767.2	258.1	304.2	204.9
Mississippi	3,833.6	2,295.0	1,538.6	399.6	671.0	468.0
North Carolina	3,082.0	1,874.0	1,208.0	665.4	431.8	110.8
Oklahoma	322.1	155.9	166.2	12.7	132.9	20.6
South Carolina	2,738.0	2,129.7	608.3	261.6	260.0	86.7
Tennessee	440.6	163.8	276.8	23.3	176.7	76.8
Texas	2,373.6	1,985.8	387.8	113.6	181.2	93.0
Virginia	1,778.7	844.7	934.0	216.7	427.3	290.0
All States	34,370.1	25,259.4	9,110.7	2,709.9	4,189.5	2,211.3

Table 3.--Roundwood production in the South, by State and species group, 1973 and 1972

State	Change from 1972	1973			1972		
		All species	Softwood	Hardwood	All species	Softwood	Hardwood
Percent		----- Thousand cords -----					
Alabama	+ 1	5,511.2	3,864.6	1,646.6	5,458.3	3,819.3	1,639.0
Arkansas	- 8	1,957.7	1,255.3	702.4	2,132.1	1,343.3	788.8
Florida	- 4	3,010.0	2,783.1	226.9	2,896.1	2,687.2	208.9
Georgia	+ 1	6,092.1	5,444.2	647.9	6,003.6	5,317.0	686.6
Louisiana	+ 2	3,230.5	2,463.3	767.2	3,164.8	2,351.2	813.6
Mississippi	+ 8	3,833.6	2,295.0	1,538.6	3,545.5	2,367.6	1,177.9
North Carolina	+ 2	3,082.0	1,874.0	1,208.0	3,031.6	1,892.9	1,138.7
Oklahoma	+13	322.1	155.9	166.2	285.7	190.8	94.9
South Carolina	+ 7	2,738.0	2,129.7	608.3	2,547.6	1,991.0	556.6
Tennessee	- 3	440.6	163.8	276.8	453.2	180.8	272.4
Texas	+ 8	2,373.6	1,985.8	387.8	2,198.6	1,836.1	362.5
Virginia	+ 6	1,778.7	844.7	934.0	1,674.6	827.7	846.9
All States	+ 3	34,370.1	25,259.4	9,110.7	33,391.7	24,804.9	8,586.8

In 1973, pulpwood production in the South totaled 47,106,609 cords, an increase of 6 percent from 1972. All states reported production gains except Arkansas, which declined 1 percent (table 1). Wood residues, primarily softwoods, accounted for 65 percent of the increase. Of the remainder, hardwood roundwood accounted for 54 percent, while softwood roundwood accounted for 46 percent. Six states--Mississippi, Virginia, Georgia, Louisiana, South Carolina, and Texas--reported 79

percent of the increase. By state, Mississippi led in production gains with 735,300 cords, followed by Virginia and Georgia with increases of over 300,000 cords. Georgia continued to lead the South in pulpwood production, reporting over 7.8 million cords, while the second leading producer--Alabama--reported almost 7.2 million cords. By Experiment Station territory, the Midsouth produced over 3 million cords more pulpwood than the Southeast. The Southeast led only in softwood roundwood

Table 4.--Southern pulpwood production by Experiment Station territory, 1973

Station and source of wood	All species	Softwood	Hardwood
- - - Standard cords - - -			
Southeastern: ^{1/}			
Roundwood	16,700,808	13,075,135	3,625,073
Residues	5,192,220	4,121,193	1,071,027
Total	21,893,028	17,196,328	4,696,100
Southern: ^{2/}			
Roundwood	17,669,291	12,183,702	5,485,589
Residues	7,544,290	6,153,798	1,390,494
Total	25,213,581	18,337,498	6,876,083
Both stations:			
Roundwood	34,370,099	25,259,437	9,110,662
Residues	12,736,510	10,274,991	2,461,519
Total	47,106,609	35,534,428	11,572,181

^{1/} States of Florida, Georgia, North Carolina, South Carolina, and Virginia.

^{2/} States of Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas.

production. Pulpwood production in the South has doubled in the past 14 years and currently contributes about two-thirds of the Nation's domestic production.

Softwood roundwood production was 25.3 million cords, or 73 percent of the total (table 2). Of the remainder, 46 percent was oaks, 30 percent was gums, and other hardwoods made up 24 percent. The output of gums as a percentage of the total hardwood production has declined during the past decade, although the output of gums has increased 3 percent over the same period. On the other hand, oaks have

more than tripled in use, while the output of other hardwoods has increased by 80 percent. Virginia posted a 2-percent increase in softwood roundwood production after a 7-year decline, primarily as a result of increased harvesting in the Piedmont, but softwood output continued to decline in the Coastal Plain. Arkansas and Tennessee were the only states that did not report an increase in roundwood production (table 3). Softwood roundwood production in the Southeast exceeded that of the Midsouth by over 890,000 cords, while hardwood roundwood in the Midsouth surpassed that of the Southeast by almost 1.9 million cords (table 4).

In 1973, 78 counties or parishes reported roundwood production in excess of 100,000 cords, with 54 of these being located in the Midsouth (county production tables 7-19). Alabama led the South with 20 counties, followed by Louisiana with 13 parishes. Mississippi and South Carolina each had eight, while Texas recorded seven. Florida and Georgia each had six counties, with Taylor County, Florida, reporting the South's largest production of over 247,000 cords. Choctaw, Clarke, and Conecuh Counties in Alabama, and Sabine Parish, Louisiana, reported roundwood production in excess of 200,000 cords each. Production of softwood exceeded 100,000 cords in 30 counties, while only two counties--Choctaw and Clarke--in Alabama reported over 100,000 cords of hardwood roundwood.

Table 5.--Southern output of wood residues for pulp manufacture, by State and type of residue, 1973

State	All types	Chips			Other residues ^{1/}		
		All species	Softwood	Hardwood	All species	Softwood	Hardwood
----- Thousand cords -----							
Alabama	1,661.0	1,497.8	1,200.8	297.0	163.2	151.4	11.8
Arkansas	1,417.9	1,212.6	1,074.3	138.3	205.3	194.9	10.4
Florida	481.4	464.9	379.9	85.0	16.5	16.5	--
Georgia	1,774.2	1,741.8	1,494.6	247.2	32.4	29.9	2.5
Louisiana	1,204.8	1,148.4	969.4	179.0	56.4	36.7	19.7
Mississippi	1,486.1	1,414.1	1,104.9	309.2	72.0	61.0	11.0
North Carolina	1,150.6	1,053.7	844.5	209.2	96.9	79.6	17.3
Oklahoma	294.6	202.1	172.8	29.3	92.5	68.1	24.4
South Carolina	1,013.3	905.6	731.3	174.3	107.7	107.6	0.1
Tennessee	240.8	238.9	48.9	190.0	1.9	0.1	1.8
Texas	1,239.1	1,107.1	1,035.9	71.2	132.0	34.6	97.4
Virginia	772.7	650.0	379.8	270.2	122.7	57.5	65.2
All States	12,736.5	11,637.0	9,437.1	2,199.9	1,099.5	837.9	261.6

^{1/} Veneer cores, pole and piling trim, cull crossties, sawdust and secondary residues.

Table 6.--Southern output of wood residues in pulp manufacture, by State and species group, 1973 and 1972

State	Change	1973			1972		
	from	All	Softwood	Hardwood	All	Softwood	Hardwood
	1972	species			species		
Percent		----- Thousand cords -----					
Alabama	+ 8	1,661.0	1,352.2	308.8	1,533.5	1,258.8	274.7
Arkansas	+12	1,417.9	1,269.2	148.7	1,261.8	1,113.9	147.9
Florida	- 3	481.4	396.4	85.0	497.2	397.6	99.6
Georgia	+14	1,774.2	1,524.5	249.7	1,561.5	1,346.5	215.0
Louisiana	+24	1,204.8	1,006.1	198.7	972.9	802.9	170.0
Mississippi	+43	1,486.1	1,165.9	320.2	1,038.9	793.8	245.1
North Carolina	+ 7	1,150.6	924.1	226.5	1,074.6	861.3	213.3
Oklahoma	+60	294.6	240.9	53.7	183.9	182.6	1.3
South Carolina	+ 9	1,013.3	838.9	174.4	926.3	750.9	175.4
Tennessee	+33	240.8	49.0	191.8	180.7	14.8	165.9
Texas	+10	1,239.1	1,070.5	168.6	1,124.5	1,064.6	59.9
Virginia	+45	772.7	437.3	335.4	532.0	293.4	238.6
All States	+17	12,736.5	10,275.0	2,461.5	10,887.8	8,881.1	2,006.7

Table 7.--Round pulpwood production in Alabama, 1973

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Autauga	83,315	48,237	35,078
Baldwin	160,583	124,308	36,275
Barbour	96,138	75,772	20,366
Bibb	127,576	87,371	40,205
Blount	31,212	29,268	1,944
Bullock	55,746	42,154	13,592
Butler	184,394	117,358	67,036
Calhoun	49,425	44,391	5,034
Chambers	91,109	75,701	15,408
Cherokee	51,216	41,228	9,988
Chilton	86,382	62,379	24,003
Choctaw	221,654	92,580	129,074
Clarke	223,270	115,672	107,598
Clay	108,451	95,007	13,444
Cleburne	52,388	44,913	7,475
Coffee	86,827	65,489	21,338
Colbert	4,946	3,836	1,110
Conecuh	214,051	133,465	80,586
Coosa	104,421	79,390	25,031
Covington	152,540	125,484	27,056
Crenshaw	120,991	80,872	40,119
Cullman	71,624	62,641	8,983
Dale	92,093	58,068	34,025
Dallas	100,060	49,597	50,463
De Kalb	18,140	16,210	1,930
Elmore	49,042	39,590	9,452
Escambia	166,554	130,272	36,282
Etowah	24,908	22,772	2,136
Fayette	49,155	39,834	9,321
Franklin	48,946	22,172	26,774
Geneva	59,078	42,683	16,395
Greene	42,827	24,744	18,083
Hale	46,655	25,515	21,080
Henry	58,801	42,493	16,308
Houston	60,273	50,966	9,307
Jackson	8,881	6,441	2,440
Jefferson	31,552	23,592	2,960
Lamar	42,342	34,280	8,062
Lauderdale	8,405	2,828	5,577
Lawrence	5,672	2,124	3,548
Lee	101,771	94,597	7,174
Limestone	7,187	3,664	4,113
Lowndes	88,889	55,179	33,710
Macon	56,538	50,218	6,320
Madison	69	53	16
Marengo	130,796	68,593	62,203
Marion	52,955	41,041	11,926
Marshall	20,545	20,404	141
Mobile	91,841	77,481	14,360
Monroe	184,488	113,419	71,069
Montgomery	74,395	42,101	32,294
Morgan	5,199	3,451	1,748
Perry	51,304	54,346	37,048
Pickens	80,708	41,022	39,686
Pike	116,766	86,179	30,587
Randolph	84,432	75,111	8,722
Russell	59,943	54,006	5,937
St. Clair	79,649	71,618	7,931
Shelby	71,101	57,465	13,636
Sumter	98,374	46,542	51,832
Talladega	109,609	91,157	18,452
Tallapoosa	152,072	123,959	28,113
Tuscaloosa	59,994	47,209	12,785
Walker	84,848	67,906	16,942
Washington	146,344	90,080	56,264
Wilcox	103,745	53,449	50,296
Winston	59,651	48,313	11,338
All counties	5,511,158	3,864,629	1,646,529

Table 8.--Round pulpwood production in Arkansas, 1973

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Arkansas	1,436	--	1,436	Lincoln	20,573	9,952	10,621
Ashley	139,737	83,313	56,424	Little River	30,631	21,617	9,014
Baxter	197	172	25	Logan	15,215	10,335	4,880
Boone	7	3	4	Lonoke	3,819	246	3,573
Bradley	19,756	11,143	8,613	Miller	40,667	22,836	17,831
Calhoun	99,698	66,479	33,219	Monroe	31	29	2
Chicot	7,110	3	7,107	Montgomery	36,807	30,925	5,882
Clark	61,001	40,646	20,355	Nevada	84,584	63,603	20,981
Cleburne	17,111	13,768	3,343	Newton	68	4	64
Cleveland	61,373	32,609	28,764	Ouachita	56,773	41,742	15,031
Columbia	116,551	99,791	16,760	Perry	25,411	22,015	3,396
Conway	19,562	14,610	4,952	Phillips	2,008	--	2,008
Craighead	9	3	6	Pike	47,578	30,676	16,902
Crawford	1,400	446	954	Poinsett	9	9	--
Dallas	118,707	66,113	52,594	Polk	17,597	8,987	8,610
Desha	17,390	84	17,306	Pope	20,672	11,804	8,868
Drew	93,593	27,962	65,631	Pulaski	26,104	3,274	22,830
Faulkner	2,909	650	2,259	Saline	49,539	37,226	12,313
Franklin	724	371	353	Scott	24,627	19,538	5,089
Garland	31,377	26,065	5,312	Searcy	946	788	158
Grant	119,162	85,924	33,238	Sebastian	348	91	257
Hempstead	38,563	29,415	9,148	Sevier	21,030	11,034	9,996
Hot Spring	96,539	70,250	26,289	Sharp	30	20	10
Howard	18,138	9,778	8,360	Stone	2,413	2,056	357
Independence	2,828	1,697	1,131	Union	141,446	102,124	39,322
Izard	159	109	50	Van Buren	15,200	12,444	2,756
Jackson	853	14	839	White	14,162	4,527	9,635
Jefferson	67,603	35,164	32,439	Woodruff	34	3	31
Johnson	7,094	5,066	2,028	Yell	28,523	17,512	11,011
Lafayette	63,926	48,220	15,706	All counties	1,957,719	1,255,288	702,431
Lee	6,361	3	6,358				

^{1/} Counties with no pulpwood production are omitted.

Table 9.--Round pulpwood production in Florida, 1973

County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -			
Alachua	76,600	69,422	7,178
Baker	153,244	152,029	1,215
Bay	61,424	61,156	268
Bradford	94,612	92,116	2,496
Brevard	892	892	--
Calhoun	94,259	93,552	707
Charlotte	335	335	--
Citrus	6,041	5,969	72
Clay	56,918	53,908	3,010
Collier	4,019	4,019	--
Columbia	97,900	94,764	3,136
Dade	1,113	1,113	--
De Soto	163	163	--
Dixie	106,029	101,952	4,077
Duval	85,845	82,784	3,061
Escambia	89,319	86,133	3,186
Flagler	42,915	41,650	1,265
Franklin	59,297	59,168	129
Gadsden	43,207	33,433	9,774
Gilchrist	41,002	33,186	7,816
Glades	4,505	4,505	--
Gulf	16,177	15,953	224
Hamilton	58,232	57,982	250
Hardee	22,432	22,432	--
Hendry	11,533	11,533	--
Hernando	2,877	1,163	1,714
Highlands	178	178	--
Hillsborough	334	334	--
Holmes	69,208	60,487	8,721
Indian River	382	382	--
Jackson	95,869	87,563	8,306
Jefferson	29,218	26,175	3,043
Lafayette	63,693	63,693	--

County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -			
Lake	2,764	2,764	--
Lee	290	290	--
Leon	44,035	40,722	3,313
Levy	97,983	62,314	35,669
Liberty	66,179	54,672	11,507
Madison	102,550	86,640	15,910
Manatee	116	116	--
Marion	119,079	31,191	27,888
Martin	776	776	--
Nassau	160,333	154,675	5,658
Oklaloosa	40,511	32,608	7,903
Okeechobee	4,361	4,361	--
Orange	127	127	--
Osceola	30,581	30,581	--
Palm Beach	294	294	--
Pasco	8,708	8,246	462
Polk	16,831	16,831	--
Putnam	42,774	36,868	5,906
St. Johns	87,950	76,427	11,523
St. Lucie	433	433	--
Santa Rosa	82,193	81,030	1,163
Sarasota	1,182	1,182	--
Seminole	1,498	1,498	--
Sumter	760	760	--
Suwannee	61,452	52,316	9,136
Taylor	247,331	247,331	--
Union	61,747	60,080	1,667
Volusia	29,740	28,720	1,020
Wakulla	57,341	56,441	900
Walton	90,566	77,120	13,446
Washington	59,754	55,586	4,168
All counties	3,010,011	2,783,124	226,887

^{1/} Counties with no pulpwood production are omitted.

Table 10.--Round pulpwood production in Georgia, 1973

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Appling	81,417	76,771	4,646
Atkinson	69,301	68,882	419
Bacon	57,827	56,113	1,714
Baker	21,576	20,092	1,484
Baldwin	20,993	18,049	2,944
Banks	11,360	10,773	587
Barrow	16,590	15,231	1,359
Bartow	20,961	20,245	716
Ben Hill	71,843	68,413	3,430
Berrien	19,140	17,718	1,422
Bibb	22,379	20,395	1,984
Bleckley	23,121	15,847	7,274
Brantley	85,504	73,774	11,730
Brooks	40,361	30,099	10,262
Bryan	97,836	92,380	5,456
Bulloch	50,165	46,654	3,511
Burke	99,298	82,660	16,638
Butts	24,315	23,066	1,309
Calhoun	26,641	21,474	5,167
Camden	93,671	80,567	13,104
Candler	16,399	14,017	2,382
Carroll	54,570	51,186	3,384
Catoosa	9,615	8,536	1,079
Charlton	107,805	101,346	6,459
Chatham	20,726	15,518	5,208
Chattahoochee	29,633	19,388	10,245
Chattooga	22,214	18,669	3,545
Cherokee	41,963	41,066	897
Clarke	6,067	5,953	114
Clay	44,559	32,746	11,813
Clayton	3,322	3,300	22
Clinch	156,148	155,749	399
Cobb	19,053	18,467	586
Coffee	74,158	73,026	1,132
Colquitt	38,914	30,665	8,249
Columbia	30,802	26,519	4,283
Cook	15,751	13,808	1,943
Coweta	67,244	65,169	2,075
Crawford	99,492	87,373	12,119
Crisp	22,969	22,753	216
Dade	1,076	968	108
Dawson	7,949	7,154	795
Decatur	74,620	63,999	10,621
De Kalb	4,191	4,100	91
Dodge	79,455	71,941	7,514
Dooly	11,635	8,712	2,923
Dougherty	42,603	41,616	987
Douglas	22,914	20,980	1,934
Early	49,525	33,921	15,604
Echols	39,738	39,738	--
Effingham	39,940	36,449	3,491
Elbert	28,269	26,751	1,518
Emanuel	73,374	68,376	4,998
Evans	12,774	9,234	3,540

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Fannin	16,371	9,327	7,044
Fayette	16,736	15,930	806
Floyd	19,157	16,602	2,555
Forsyth	3,563	3,324	239
Franklin	38,281	36,777	1,504
Fulton	17,966	16,744	1,222
Gilmer	19,592	14,621	4,971
Glascok	2,304	2,237	67
Glynn	67,257	49,472	17,785
Gordon	23,007	20,628	2,379
Grady	45,658	34,484	11,174
Greene	48,983	43,318	5,665
Gwinnett	14,366	13,763	603
Habersham	4,526	4,526	--
Hall	22,091	21,019	1,072
Hancock	80,028	66,654	13,374
Haralson	39,708	30,806	8,902
Harris	83,688	77,385	6,303
Hart	11,134	11,032	102
Heard	50,378	44,705	5,673
Henry	27,078	24,675	2,403
Houston	56,668	52,557	4,111
Irwin	3,023	3,023	--
Jackson	28,727	27,860	867
Jasper	44,259	38,772	5,487
Jeff Davis	42,501	38,269	4,232
Jefferson	35,893	33,632	2,261
Jenkins	43,230	38,854	4,376
Johnson	52,985	43,638	9,347
Jones	46,816	42,122	4,694
Lamar	29,411	27,384	2,027
Lanier	15,676	15,676	--
Laurens	68,324	57,176	11,148
Lee	7,427	7,232	195
Liberty	112,652	94,112	18,540
Lincoln	19,515	18,929	586
Long	51,344	48,038	3,306
Lowndes	22,012	21,905	107
Lumpkin	6,263	5,632	631
McDuffie	11,905	9,961	1,944
McIntosh	41,501	38,956	2,545
Macon	32,286	23,464	8,822
Madison	18,631	17,112	1,519
Marion	25,439	24,722	717
Meriwether	78,880	76,872	2,008
Miller	25,140	22,540	2,600
Mitchell	79,649	76,295	3,354
Monroe	47,882	43,717	4,165
Montgomery	51,912	49,824	2,088
Morgan	24,358	20,230	4,128
Murray	27,457	24,392	3,065
Muscogee	3,116	2,446	670

Table 10.--Round pulpwood production in Georgia, 1973 (Continued)

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Newton	17,364	16,664	700	Taylor	22,970	20,946	2,024
Oconee	27,455	25,449	2,006	Telfair	2,076	63,300	2,124
Oglethorpe	40,528	35,758	4,770	Terrell	34,858	32,164	2,694
Paulding	37,054	30,298	6,756	Thomas	55,513	47,254	8,259
Peach	9,147	7,837	1,310	Tift	14,787	11,421	3,366
Pickens	20,868	18,293	2,575	Toombs	46,025	44,803	1,132
Pierce	48,493	47,101	1,392	Towns	1,205	1,047	158
Pike	11,658	10,743	915	Treutlen	22,259	21,521	738
Polk	28,786	25,613	3,173	Troup	88,919	84,424	4,495
Pulaski	24,694	21,215	3,479	Turner	13,914	13,714	200
Putnam	38,878	33,999	4,879	Twiggs	24,309	19,344	4,965
Quitman	20,660	19,409	1,251	Union	7,401	5,512	1,889
Rabun	8,942	4,089	4,853	Upson	51,201	47,847	3,364
Randolph	54,784	40,004	14,780	Walker	26,312	22,692	3,620
Richmond	50,932	29,463	21,569	Walton	20,129	19,423	1,106
Rockdale	46	46	--	Ware	1,114	1,551	418
Schley	10,029	10,885	44	Warren	24,051	20,238	3,813
Screven	37,633	37,094	539	Washington	75,305	67,980	7,325
Seminole	23,708	22,184	1,524	Wayne	149,024	138,687	10,337
Spalding	12,861	11,460	1,401	Webster	44,341	4,166	10,155
Stephens	10,087	9,843	244	Wheeler	51,047	42,335	7,712
Stewart	109,553	87,926	21,627	White	1,308	1,296	12
Sumter	35,021	33,572	1,449	Whitfield	23,112	22,110	1,002
Talbot	64,047	59,848	4,099	Wilcox	40,851	40,253	598
Taliaferro	13,694	12,205	1,489	Wilkes	51,218	45,500	5,718
Tattnall	28,730	26,733	1,997	Wilkinson	18,884	12,155	6,729
				Worth	57,745	56,361	1,584
				All counties	6,092,065	5,444,199	647,866

Table 11.--Round pulpwood production in Louisiana, 1973

Parish ^{1/}	All species	Softwood	Hardwood	Parish ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Acadia	2,066	1,642	424	Madison	29,759	37	29,722
Allen	84,481	78,177	6,304	Morehouse	58,971	40,929	18,042
Ascension	2,040	11	2,029	Natchitoches	108,823	89,817	19,006
Assumption	2,186	35	2,151	Orleans	8	8	--
Avoyelles	16,616	6,404	10,212	Ouachita	64,656	39,379	25,277
Beauregard	181,396	176,418	4,978	Pointe Coupee	23,206	133	23,073
Bienville	199,824	175,822	24,002	Rapides	194,585	160,105	34,480
Bossier	100,649	67,927	32,722	Red River	49,869	41,525	8,344
Caddo	56,948	41,947	15,001	Richland	4,918	74	4,844
Calcasieu	37,015	36,946	69	Sabine	219,548	197,715	21,833
Caldwell	54,594	33,891	20,703	St. Bernard	11	11	--
Catahoula	49,256	15,927	33,329	St. Helena	69,466	60,725	8,741
Claiborne	107,099	95,034	12,065	St. Landry	8,791	409	8,382
Concordia	23,009	6	23,003	St. Martin	75	41	34
De Soto	118,119	99,154	18,965	St. Mary	31	31	--
East Baton Rouge	4,959	692	4,267	St. Tammany	28,041	25,497	2,544
East Carroll	22,350	45	22,305	Tangipahoa	56,676	46,337	10,339
East Feliciana	26,860	19,678	7,182	Tensas	65,467	76	65,391
Evangeline	14,660	11,688	2,972	Terrebonne	22	16	6
Franklin	2,707	187	2,520	Union	191,398	144,057	47,341
Grant	101,115	83,054	18,061	Vermilion	153	55	98
Iberia	8	--	8	Vernon	211,897	201,086	10,811
Iberville	7,448	29	7,419	Washington	21,981	17,648	4,333
Jackson	98,162	78,177	19,985	Webster	79,968	60,733	119,235
Jefferson	6	--	6	West Baton Rouge	3,440	117	3,323
Jefferson Davis	5,726	4,920	806	West Carroll	924	59	865
Lafourche	4	--	4	West Feliciana	10,823	1,848	8,975
La Salle	153,844	121,183	32,661	Winn	127,273	82,512	44,761
Lincoln	87,795	74,668	13,127	All parishes	3,230,501	2,463,287	767,214
Livingston	38,779	28,645	10,134				

^{1/} Parishes with no pulpwood production are omitted.

Table 12.--Round pulpwood production in Mississippi, 1973

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Adams	34,187	1,626	32,561	Lowndes	5,391	3,721	1,670
Alcorn	20,593	13,659	6,934	Madison	44,895	18,627	26,268
Amite	115,658	99,175	16,483	Marion	55,563	33,321	22,242
Attala	85,474	58,791	26,683	Marshall	31,102	13,577	17,525
Benton	18,883	9,144	9,739	Monroe	18,494	13,274	5,220
Bolivar	5,348	6	5,342	Montgomery	54,565	28,787	25,778
Calhoun	12,629	8,355	4,274	Neshoba	84,860	46,018	38,842
Carroll	22,001	12,980	9,021	Newton	110,941	72,583	38,358
Chickasaw	27,108	18,787	8,321	Noxubee	39,555	21,631	17,924
Choctaw	59,001	35,857	23,144	Oktibbeha	25,303	12,967	12,336
Claiborne	44,614	18,012	26,602	Panola	2,207	201	2,006
Clarke	190,749	92,172	98,577	Pearl River	49,609	34,609	15,000
Clay	25,106	8,358	16,748	Perry	60,987	47,776	13,211
Coahoma	1,092	2	1,090	Pike	79,555	66,342	13,213
Copiah	130,876	88,842	42,034	Pontotoc	41,977	17,960	24,017
Covington	54,890	35,054	19,836	Prentiss	36,733	24,587	12,146
De Soto	216	211	5	Quitman	133	111	22
Forrest	39,394	22,966	16,428	Rankin	129,148	78,223	50,925
Franklin	69,621	33,960	35,661	Scott	66,842	46,373	20,469
George	48,487	34,397	14,090	Sharkey	1,152	139	1,013
Greene	102,300	62,047	40,253	Simpson	65,759	47,015	18,744
Grenada	12,579	4,401	8,178	Smith	39,164	23,616	15,548
Hancock	40,201	38,178	2,023	Stone	35,743	23,538	12,205
Harrison	50,925	42,990	7,935	Sunflower	27	27	--
Hinds	40,006	15,306	24,700	Tallahatchie	2,330	790	1,540
Holmes	80,685	30,705	49,980	Tate	3,943	42	3,901
Humphreys	7,568	33	7,535	Tippah	53,165	38,265	14,900
Issaquena	1,919	6	1,913	Tishomingo	57,730	39,387	18,343
Itawamba	56,851	32,650	24,201	Tunica	1,960	4	1,956
Jackson	53,813	47,568	6,245	Union	10,748	8,046	2,702
Jasper	96,723	57,007	39,716	Walthall	44,027	30,278	13,749
Jefferson	67,288	19,462	47,826	Warren	15,339	932	14,407
Jefferson Davis	46,191	35,086	11,105	Washington	4,627	4	4,623
Jones	53,927	26,611	27,316	Wayne	93,746	59,538	34,208
Kemper	87,410	49,108	38,302	Webster	72,161	28,663	43,498
Lafayette	14,425	7,408	7,017	Wilkinson	97,353	38,872	58,481
Lamar	26,288	15,801	10,487	Winston	53,265	33,022	20,243
Lauderdale	91,814	51,931	39,883	Yalobusha	12,862	6,879	5,983
Lawrence	48,755	36,551	12,204	Yazoo	23,520	2,316	21,204
Leake	109,157	82,371	26,786				
Lee	4,870	4,274	596				
Leflore	734	185	549				
Lincoln	106,749	80,906	25,843	All counties	3,833,586	2,295,000	1,538,586

Table 13.--Round pulpwood production in North Carolina, 1973

County	All species	Softwood	Hardwood
- - - Standard cords - - -			
Alamance	7,322	1,777	5,545
Alexander	16,176	13,821	2,355
Alleghany	172	18	154
Anson	76,797	45,411	31,386
Ashe	13	--	13
Avery	155	--	155
Beaufort	150,288	98,918	51,370
Bertie	79,611	34,946	44,665
Bladen	87,345	56,202	31,143
Brunswick	97,332	76,339	20,993
Buncombe	23,580	9,140	14,440
Burke	39,003	24,786	14,217
Cabarrus	20,289	12,367	7,922
Caldwell	8,208	5,779	2,429
Camden	10,614	6,068	4,546
Carteret	50,850	36,485	14,365
Caswell	15,545	5,001	10,544
Catawba	10,029	9,214	815
Chatham	60,758	29,728	31,030
Cherokee	31,768	18,447	13,321
Chowan	16,976	6,532	10,444
Clay	3,942	3,485	457
Cleveland	18,005	15,256	2,749
Columbus	78,312	49,360	28,952
Craven	112,615	74,584	38,031
Cumberland	49,043	32,597	16,446
Currituck	2,021	477	1,544
Dare	3,070	2,629	441
Davidson	18,634	11,985	6,649
Davie	9,110	5,944	3,166
Duplin	71,641	43,022	28,619
Durham	30,684	21,202	9,482
Edgecombe	31,226	20,173	11,053
Forsyth	10,127	6,804	3,323
Franklin	67,793	41,982	25,811
Gaston	11,965	10,465	1,500
Gates	21,533	7,405	14,128
Graham	22	--	22
Granville	51,724	24,168	27,556
Greene	14,526	8,504	6,022
Guilford	5,149	3,668	1,481
Halifax	53,623	32,316	21,307
Harnett	22,520	14,742	7,778
Haywood	13,057	1,566	11,491
Henderson	22,812	3,859	18,953
Hertford	26,963	7,623	19,340
Hoke	23,455	18,475	4,980
Hyde	42,554	34,138	8,416
Iredell	28,559	22,978	5,581
Jackson	4,067	2,619	1,448
Johnston	38,476	14,865	23,611
Jones	116,116	88,457	27,659
Lee	18,445	8,446	9,999
Lenoir	50,411	33,229	17,182
Lincoln	12,750	10,935	1,815
McDowell	12,743	6,639	6,104
Macon	94	86	8
Madison	2,679	1,325	1,354
Martin	45,928	29,099	16,829
Mecklenburg	19,625	14,679	4,946
Mitchell	444	--	444
Montgomery	40,194	20,560	19,634
Moore	51,394	33,923	17,471
Nash	49,202	23,272	25,930
New Hanover	16,737	12,964	3,773
Northampton	39,321	17,923	21,398
Onslow	64,742	48,493	16,249
Orange	21,484	12,852	8,632
Pamlico	45,743	27,563	18,180
Pasquotank	9,044	4,370	4,674
Pender	47,041	30,839	16,202
Perquimans	21,091	6,933	14,158
Person	25,678	11,118	14,560
Pitt	55,527	41,272	14,255
Polk	13,499	5,000	8,499
Randolph	13,072	5,487	7,585
Richmond	37,536	22,768	14,768
Robeson	49,854	30,598	19,256
Rockingham	14,221	9,569	4,652
Rowan	9,707	7,766	1,941
Rutherford	52,046	34,164	17,882
Sampson	88,924	49,423	39,501
Scotland	19,509	14,355	5,154
Stanly	21,664	11,416	10,248
Stokes	7,940	4,119	3,821
Surry	13,129	10,666	2,463
Swain	8,345	6,262	2,083
Transylvania	23,685	2,060	21,625
Tyrrell	19,708	13,571	6,137
Union	29,460	17,692	11,768
Vance	3,992	2,061	1,931
Wake	56,965	31,492	25,473
Warren	39,498	29,048	10,450
Washington	16,307	8,328	7,979
Watauga	3	3	--
Wayne	23,218	13,564	9,654
Wilkes	18,263	10,855	7,408
Wilson	26,783	13,098	13,685
Yadkin	9,755	7,264	2,491
Yancey	8,471	582	7,889
All counties	3,082,046	1,874,058	1,207,988

Table 14.--Round pulpwood production in Oklahoma, 1973

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Alfalfa	1,207	--	1,207	Lincoln	1,118	--	1,118
Carter	421	--	421	Love	562	--	562
Choctaw	8,501	3,368	5,133	McCurtain	184,875	104,506	80,369
Cleveland	148	--	148	Marshall	120	--	120
Custer	159	--	159	Mayes	1,423	--	1,423
Delaware	1,423	--	1,423	Okfuskee	651	--	651
Ellis	45	--	45	Oklahoma	521	--	521
Harper	3,019	--	3,019	Pushmataha	43,065	19,182	23,883
Haskell	5,282	400	4,882	Roger Mills	3,972	--	3,972
Hughes	73	--	73	Washita	951	--	951
Kiowa	246	--	246				
Le Flore	63,914	28,471	35,443	All counties	322,097	155,927	166,170

^{1/} Counties with no pulpwood production are omitted.

Table 15.--Round pulpwood production in South Carolina, 1973

County	All species	Softwood	Hardwood	County	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Abbeville	50,026	42,166	7,860	Jasper	53,032	28,717	24,315
Aiken	105,651	97,070	8,581	Kershaw	120,908	90,236	30,672
Allendale	30,760	29,192	1,568	Lancaster	66,429	45,339	21,090
Anderson	67,004	59,897	7,107	Laurens	58,815	47,748	11,067
Bamberg	44,391	38,234	6,157	Lee	18,116	13,477	4,639
Barnwell	54,486	54,099	387	Lexington	52,528	49,462	3,066
Beaufort	6,882	5,970	912	McCormick	74,330	56,362	17,968
Berkeley	100,634	72,998	27,636	Marion	45,554	20,241	25,313
Calhoun	8,996	8,552	444	Marlboro	46,664	26,638	20,026
Charleston	52,850	44,187	8,663	Newberry	104,448	89,573	14,875
Cherokee	25,051	19,190	5,861	Oconee	36,642	32,555	4,087
Chester	80,636	60,931	19,705	Orangeburg	86,307	69,019	17,288
Chesterfield	86,613	65,954	20,659	Pickens	29,536	19,646	9,890
Clarendon	31,464	27,309	4,155	Richland	60,464	49,935	10,529
Colleton	61,563	54,720	6,843	Saluda	48,346	42,244	6,102
Darlington	23,401	10,932	12,469	Spartanburg	44,503	38,362	6,141
Dillon	32,753	21,389	11,364	Sumter	36,362	25,043	11,319
Dorchester	40,114	19,565	20,549	Union	54,786	46,814	7,972
Edgefield	100,862	86,327	14,535	Williamsburg	74,709	49,873	24,836
Fairfield	116,804	93,586	23,218	York	63,437	45,917	17,520
Florence	35,515	12,843	22,672	All counties	2,737,992	2,129,722	608,270
Georgetown	126,199	100,293	25,906				
Greenville	17,187	15,394	1,793				
Greenwood	102,540	81,309	21,231				
Hampton	67,575	52,465	15,110				
Horry	92,119	67,949	24,170				

Table 16.--Round pulpwood production in Tennessee, 1973

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Anderson	3,087	1,718	1,369	Knox	4,703	3,553	1,150
Bedford	34	34	--	Lauderdale	1,336	--	1,336
Benton	10,325	799	9,526	Lawrence	7,920	1,949	5,971
Bledsoe	4,120	3,426	694	Lewis	3,753	--	3,753
Blount	11,527	8,420	3,107	Lincoln	719	--	719
Bradley	15,435	14,199	1,236	Loudon	4,009	1,624	2,385
Campbell	7,462	1,231	6,231	McMinn	22,299	19,590	2,709
Carroll	1,793	--	1,793	McNairy	15,020	7,395	7,625
Carter	2,513	109	2,404	Macon	854	--	854
Chester	2,091	1,163	928	Madison	306	38	268
Clay	548	--	548	Meigs	10,175	5,387	4,788
Cocke	8,650	4,041	4,609	Monroe	20,889	13,299	7,590
Coffee	3,383	3,383	--	Montgomery	454	--	454
Cumberland	15,274	6,288	8,986	Morgan	12,453	4,463	7,990
Decatur	3,791	713	3,078	Obion	645	--	645
Dickson	1,084	--	1,084	Perry	407	--	407
Dyer	107	--	107	Pickett	2,020	--	2,020
Fayette	121	113	8	Polk	9,328	6,188	3,140
Fentress	8,236	2,706	5,530	Putnam	6,637	1,728	4,909
Franklin	27	27	--	Rhea	12,928	4,376	8,552
Gibson	299	--	299	Roane	14,704	8,456	6,248
Giles	1,440	508	932	Scott	17,712	5,625	12,087
Grainger	226	--	226	Sequatchie	3,876	1,211	2,665
Greene	4,580	775	3,805	Sevier	835	609	226
Grundy	8,246	3,695	4,551	Stewart	492	--	492
Hamblen	105	104	1	Sullivan	6,883	295	6,588
Hamilton	12,916	6,515	6,401	Unicoi	1,967	86	1,881
Hancock	1,967	86	1,881	Union	904	--	904
Hardeman	11,237	5,858	5,379	Warren	2,074	1,666	408
Hardin	15,710	4,325	11,385	Washington	1,529	66	1,463
Hawkins	3,716	162	3,554	Wayne	22,897	5,307	17,590
Henderson	459	306	153	Weakley	3,658	--	3,658
Henry	8,739	--	8,739	White	1,711	--	1,711
Hickman	7,661	--	7,661				
Houston	1,683	--	1,683				
Humphreys	42,309	--	42,309				
Johnson	3,606	157	3,449	All counties	440,604	163,772	276,832

^{1/} Counties with no pulpwood production are omitted.

Table 17.--Round pulpwood production in Texas, 1973

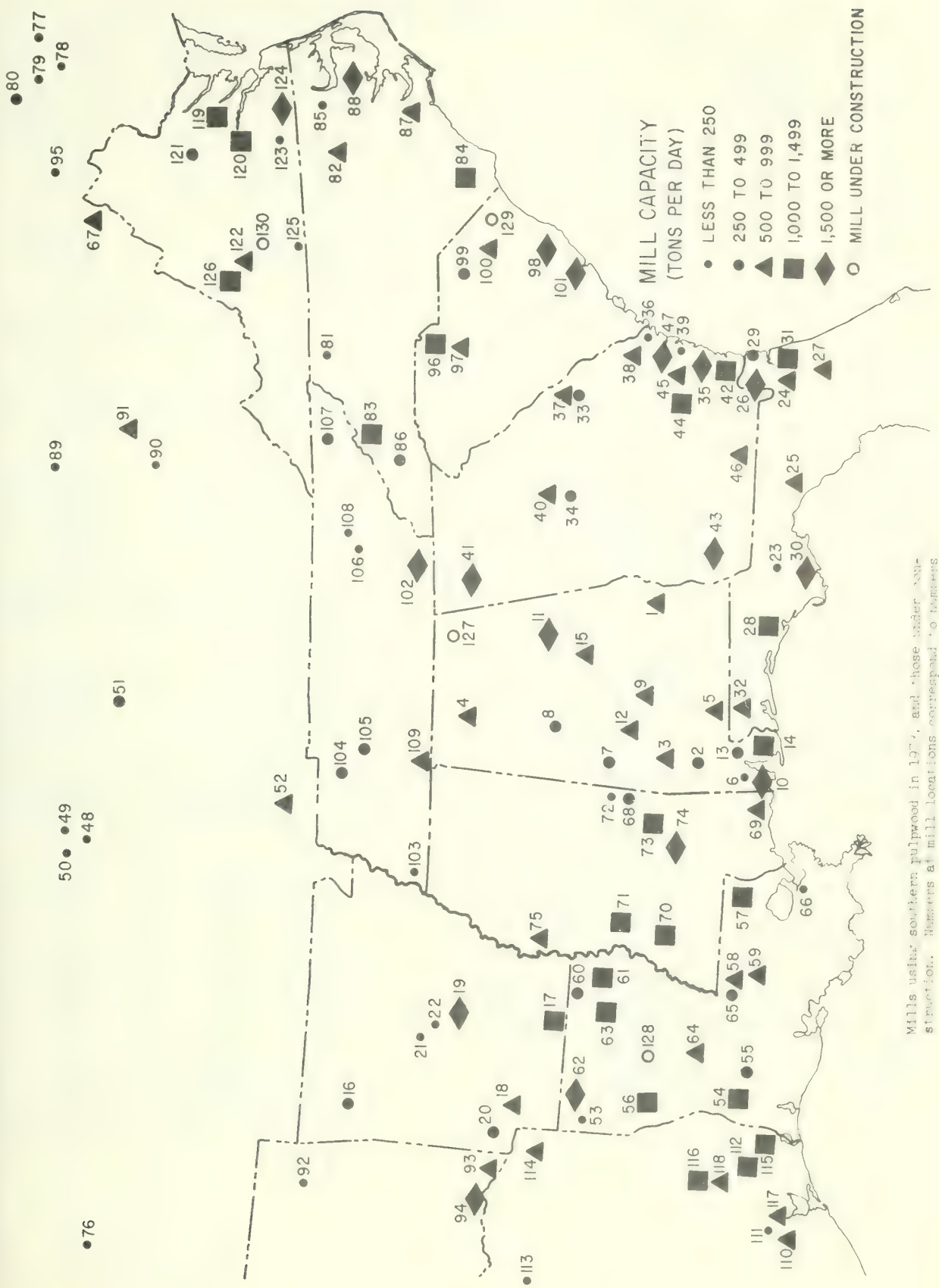
County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				- - - Standard cords - - -			
Anderson	33,290	32,039	1,251	Montgomery	48,871	42,899	5,972
Angelina	89,457	81,582	7,875	Morris	22,945	21,088	1,857
Bowie	56,267	34,256	22,011	Nacogdoches	121,039	108,356	12,683
Brazoria	18	14	4	Newton	174,393	124,971	49,422
Burleson	139	--	139	Orange	11,011	9,332	1,679
Camp	11,374	10,439	935	Panola	85,930	77,432	8,498
Cass	130,352	96,165	34,187	Polk	173,720	138,211	35,509
Chambers	1,683	1,683	--	Red River	13,201	8,229	4,972
Cherokee	79,624	72,220	7,404	Rusk	99,478	93,002	6,476
Cooke	1,143	--	1,143	Sabine	39,782	37,247	2,535
Franklin	5,264	1,611	3,653	San Augustine	98,418	91,313	7,105
Gregg	28,872	27,174	1,698	San Jacinto	39,888	36,723	3,165
Grimes	8,277	8,214	63	Shelby	95,974	90,505	5,469
Hardin	112,766	83,704	29,062	Smith	27,588	26,146	1,442
Harris	27,564	24,591	2,973	Titus	5,323	2,151	3,172
Harrison	68,417	60,909	7,508	Trinity	78,225	74,478	3,747
Henderson	110	97	13	Tyler	112,093	75,868	36,225
Hopkins	772	505	267	Upshur	71,685	65,179	6,506
Houston	58,619	56,396	2,223	Walker	43,977	40,165	3,812
Jasper	179,115	137,770	41,345	Waller	456	--	456
Jefferson	896	513	383	Wood	24,228	19,447	4,781
Leon	3,303	2,879	424				
Liberty	23,470	17,694	5,776				
Marion	64,609	52,602	12,007	All counties	2,373,626	1,985,799	387,827

^{1/} Counties with no pulpwood production are omitted.

Table 18.--Round pulpwood production in Virginia, 1973

County ^{1/}	All species	Softwood	Hardwood	County ^{1/}	All species	Softwood	Hardwood
- - - Standard cords - - -				Standard cords - - -			
Accomack	12,039	11,082	957	King William	13,398	7,824	5,574
Albemarle	40,800	19,060	21,740	Lancaster	1,700	1,329	371
Alleghany	25,644	3,903	21,741	Lee	2,391	117	2,274
Amelia	32,764	16,789	15,975	Louisa	19,744	11,141	8,603
Amherst	37,846	21,953	15,893	Lunenburg	35,491	18,747	16,744
Appomattox	65,304	36,372	28,932	Madison	215	166	49
Arlington	11	--	11	Mathews	1,580	1,200	380
Augusta	27,894	2,988	24,906	Mecklenburg	28,475	13,296	15,179
Bath	29,879	3,763	26,116	Middlesex	2,511	1,422	1,089
Bedford	62,505	27,352	35,153	Montgomery	1,128	359	769
Bland	15	--	15	Nansemond	12,377	4,026	8,351
Botetourt	29,363	2,994	26,369	Nelson	40,934	18,352	22,582
Brunswick	76,669	43,189	33,480	New Kent	12,081	7,111	4,970
Buchanan	5	--	5	Newport News	880	527	353
Buckingham	110,983	45,313	65,670	Northampton	589	523	66
Campbell	58,628	31,538	27,090	Northumberland	773	702	71
Caroline	17,734	14,397	3,337	Nottoway	58,882	23,034	35,848
Carroll	3,174	1,616	1,558	Orange	2,901	1,489	1,412
Charles City	26,948	16,079	10,869	Page	12	12	--
Charlotte	44,485	23,778	20,707	Patrick	9,130	6,139	2,991
Chesapeake	3,927	738	3,189	Pittsylvania	72,528	46,095	26,433
Chesterfield	24,208	10,627	13,581	Powhatan	6,752	2,599	4,153
Clarke	172	84	88	Prince Edward	58,296	35,886	22,410
Craig	12,208	2,083	10,125	Prince George	18,279	6,920	11,359
Culpeper	2,880	2,387	493	Prince William	8,944	6,886	2,058
Cumberland	27,245	17,416	9,829	Pulaski	597	297	300
Dinwiddie	31,633	11,859	19,774	Rappahannock	137	14	123
Essex	9,055	7,760	1,295	Richmond	2,609	2,496	113
Fairfax	115	43	72	Roanoke	3,710	876	2,834
Fauquier	6,051	4,527	1,524	Rockbridge	56,514	12,650	43,864
Floyd	355	164	191	Rockingham	4,448	1,325	3,123
Fluvanna	36,662	14,258	22,404	Russell	434	21	413
Franklin	37,083	18,989	18,094	Scott	4,131	203	3,928
Frederick	4,698	4,332	366	Shenandoah	4,704	849	3,855
Giles	66	38	28	Smyth	5,983	287	5,696
Gloucester	4,781	2,864	1,917	Southampton	50,158	10,565	39,593
Goochland	31,668	20,050	11,618	Spotsylvania	11,854	8,170	3,684
Grayson	40	8	32	Stafford	5,351	4,309	1,042
Greene	2,004	1,197	807	Surry	25,063	7,595	17,468
Greensville	61,545	39,885	21,660	Sussex	62,702	21,920	40,782
Halifax	18,882	8,942	9,940	Virginia Beach	2,148	370	1,778
Hanover	14,959	9,331	5,628	Warren	1,873	1,591	282
Henrico	2,443	1,466	977	Washington	3,913	192	3,721
Henry	22,418	16,535	5,883	Westmoreland	2,305	2,221	84
Highland	2,688	80	2,608	Wise	1,637	80	1,557
Isle of Wight	13,180	2,423	10,757	Wythe	5,043	1,705	3,338
James City	9,532	6,894	2,638	York	2,327	1,647	680
King and Queen	26,192	20,563	5,629	All counties	1,778,694	844,632	934,062
King George	1,682	1,638	44				

^{1/} Counties with no pulpwood production are omitted.



Mills using southern pulpwood in 1974, and those under construction. Numbers at mill locations correspond to numbers in tables 17 and 20.

Table 19.--Mills using southern pulpwood in 1973, by process and capacity

Location	Map code	Company	Pulping capacity, 24 hours ^{2/}			
			All processes	Sulfate and other mechanical	Groundwood: and other chemical	Soda and sulfite
			Tons			
ALABAMA						
Mahrt	(1)	Alabama Kraft Co., Div. Ga. Kraft Co.	975	975	--	--
Jackson	(2)	Allied Paper Inc.	400	400	--	--
Naheola	(3)	American Can Co.	900	900	--	--
Courtland	(4)	Champion International	500	500	--	--
Brewton	(5)	Container Corp. of America	800	800	--	--
Mobile	(6)	GAF Corp.	50	--	50	--
Demopolis	(7)	Gulf States Paper Corp.	400	400	--	--
Tuscaloosa	(8)	Gulf States Paper Corp.	450	450	--	--
Riverdale	(9)	Hammermill Paper Co., Riverdale Div.	500	500	--	--
Mobile	(10)	International Paper Co.	1,500	1,200	300	--
Coosa Pines	(11)	Kimberly-Clark Corp., Coosa River Newsprint Div.	1,590	650	940	--
Pine Hill	(12)	McMillan Bloedel United, Inc.	950	950	--	--
Mobile	(13)	National Gypsum Co.	400	--	200	200
Mobile	(14)	Scott Paper Co.	1,400	1,400	--	--
Montgomery	(15)	Union Camp Corp.	930	930	--	--
Total			11,745	10,055	1,490	200
ARKANSAS						
Merrilton	(16)	Arkansas Kraft Corp.	360	360	--	--
Crossett	(17)	Georgia-Pacific Corp., Crossett Division-Paper	1,220	1,220	--	--
Landen	(18)	International Paper Co.	750	750	--	--
Pine Bluff	(19)	International Paper Co.	1,700	1,300	400	--
Ashdown	(20)	Nekoosa-Edwards Paper Co., Inc.	400	400	--	--
Little Rock	(21)	Superwood Corp.	140	--	140	--
Pine Bluff	(22)	Weyerhaeuser Co., Pine Bluff Operation	150	150	--	--
Total			4,720	4,180	540	--
FLORIDA						
Blountstown	(23)	Abitibi Corp.	120	--	120	--
Jacksonville	(24)	Alton Box Board Co.	625	625	--	--
Foley	(25)	The Buckeye Cellulose Corp.	923	923	--	--
Fernandina Beach	(26)	Container Corp. of America	1,700	1,700	--	--
Palatka	(27)	Hudson Pulp and Paper Corp.	950	950	--	--
Panama City	(28)	International Paper Co.	1,415	1,415	--	--
Fernandina Beach	(29)	I.T.T. Rayonier Inc.	375	--	--	375
Port St. Joe	(30)	St. Joe Paper Co.	1,700	1,700	--	--
Jacksonville	(31)	St. Regis Paper Co.	1,400	1,400	--	--
Pensacola	(32)	St. Regis Paper Co.	900	900	--	--
Total			10,108	9,613	120	375
GEORGIA						
Augusta	(33)	Abitibi Southern Corp.	375	--	375	--
Macon	(34)	Armstrong Cork Co.	400	--	400	--
Brunswick	(35)	Brunswick Pulp and Paper Co.	1,820	1,820	--	--
Savannah	(36)	Certain-teed Products Corp.	75	--	--	75
Augusta	(37)	Continental Can Co., Inc.	700	700	--	--
Port Wentworth	(38)	Continental Can Co., Inc.	600	600	--	--
Savannah	(39)	GAF Corp.	48	--	48	--
Macon	(40)	Georgia Kraft Co., Mead Div.	900	900	--	--
Rome	(41)	Georgia Kraft Co., Krannert Div.	1,600	1,600	--	--
St. Marys	(42)	Gilman Paper Co., St. Marys Kraft Div.	1,100	1,100	--	--
Cedar Springs	(43)	Great Northern Paper Co., Southern Div.	2,025	1,700	--	325
Jesup	(44)	I.T.T. Rayonier Inc.	1,266	1,266	--	--
Riceboro	(45)	Interstate Paper Corp.	500	500	--	--
Valdosta	(46)	Owens-Illinois, Forest Product Div.	875	875	--	--
Savannah	(47)	Union Camp Corp.	3,000	2,600	--	400
Total			15,284	13,661	823	800

Table 19.--Mills using southern pulpwood in 1973, by process and capacity (Continued)

Location	Map code	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood: and other mechanical	Semi- chemical	Soda and sulfite
			Tons				
ILLINOIS							
Chicago	(48)	Bird and Son, Inc.	40	--	40	--	--
Wilmington	(49)	The Celotex Corp.	30	--	30	--	--
Joliet	(50)	GAF Corp.	100	--	100	--	--
		Total	170	--	170	--	--
KENTUCKY							
Hawesville	(51)	WesCor Corp.	250	--	--	250	--
Wickliffe	(52)	Westvaco Corp.	600	600	--	--	--
		Total	850	600	--	250	--
LOUISIANA							
Shreveport	(53)	Bird and Son, Inc.	150	--	--	150	--
DeRidder	(54)	Boise Southern Co.	1,300	950	350	--	--
Elizabeth	(55)	Calkraft Paper Co., Inc.	305	305	--	--	--
Hodge	(56)	Continental Can Co., Inc.	1,355	1,105	--	250	--
Bogalusa	(57)	Crown Zellerbach Corp.	1,435	1,300	--	135	--
St. Francisville	(58)	Crown Zellerbach Corp.	500	500	--	--	--
Port Hudson	(59)	Georgia-Pacific Corp., Crossett Division	600	600	--	--	--
Bastrop	(60)	International Paper Co. (Bastrop Mill)	485	--	--	485	--
Bastrop	(61)	International Paper Co. (Louisiana Mill)	1,100	1,100	--	--	--
Springhill	(62)	International Paper Co.	1,625	1,625	--	--	--
West Monroe	(63)	Olinkraft, Inc.	1,400	1,150	--	250	--
Pineville	(64)	Pineville Kraft Corp.	850	850	--	--	--
St. Francisville	(65)	St. Francisville Paper Co.	440	220	220	--	--
New Orleans	(66)	Southern Johns-Manville Products Corp.	130	--	130	--	--
		Total	11,675	9,705	700	1,200	--
MARYLAND							
Luke	(67)	Westvaco Corp.	789	789	--	--	--
		Total	789	789	--	--	--
MISSISSIPPI							
Meridian	(68)	The Flintkote Co.	250	--	200	50	--
Moss Point	(69)	International Paper Co.	700	700	--	--	--
Natchez	(70)	International Paper Co.	1,000	1,000	--	--	--
Vicksburg	(71)	International Paper Co.	1,200	1,200	--	--	--
Meridian	(72)	Kroehler Mfg. Co. of Miss., Inc.	80	--	80	--	--
Laurel	(73)	Masonite Corp.	1,200	--	1,200	--	--
Monticello	(74)	St. Regis Paper Co.	1,620	1,620	--	--	--
Greenville	(75)	United States Gypsum Co.	500	--	500	--	--
		Total	6,550	4,520	1,980	50	--
MISSOURI							
Kansas City	(76)	GAF Corp.	90	--	90	--	--
		Total	90	--	90	--	--
NEW JERSEY							
Perth Amboy	(77)	The Celotex Corp.	100	--	100	--	--
Gloucester City	(78)	GAF Corp.	192	--	192	--	--
Manville	(79)	Johns-Manville Products Corp.	100	--	100	--	--
		Total	392	--	392	--	--
NEW YORK							
Deposit	(80)	The Celotex Corp.	300	--	300	--	--
		Total	300	--	300	--	--

Table 19.--Mills using southern pulpwood in 1973, by process and capacity (Continued)

Location	Map code	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood: and other mechanical	Semi- chemical	Soda and sulfite
			Tons				
NORTH CAROLINA							
Roaring River	(81)	Abitibi Corp.	120	--	120	--	--
Roanoke Rapids	(82)	Albemarle Paper Co.	940	940	--	--	--
Canton	(83)	Champion International	1,325	1,325	--	--	--
Riegelwood	(84)	Federal Paper Board Co., Inc.	1,100	1,100	--	--	--
Conway	(85)	Georgia-Pacific Corp.	200	--	200	--	--
Sylva	(86)	The Mead Corp.	290	--	--	290	--
New Bern	(87)	Weyerhaeuser Co., N. C. Div.	800	800	--	--	--
Plymouth	(88)	Weyerhaeuser Co., N. C. Div.	1,500	1,250	--	250	--
Total			6,275	5,415	320	540	--
OHIO							
Milan	(89)	Certain-teed Products Corp.	90	--	90	--	--
Cincinnati	(90)	The Celotex Corp.	100	--	100	--	--
Chillicothe	(91)	The Mead Corp.	600	600	--	--	--
Total			790	600	190	--	--
OKLAHOMA							
Pryor	(92)	Georgia-Pacific, Gypsum Division	150	--	150	--	--
Broken Bow	(93)	Weyerhaeuser Co., Craig Plant	520	--	520	--	--
Valliant	(94)	Weyerhaeuser Co., Valliant Operation	1,650	1,300	--	350	--
Total			2,320	1,300	670	350	--
PENNSYLVANIA							
Roaring Spring	(95)	Appleton Papers Inc.	180	180	--	--	--
Total			180	180	--	--	--
SOUTH CAROLINA							
Catawba	(96)	Bowaters Carolina Corp.	1,090	940	150	--	--
Catawba	(97)	Catawba Newsprint Co.	500	--	500	--	--
Georgetown	(98)	International Paper Co.	2,130	1,650	--	480	--
Hartsville	(99)	Sonoco Products Co.	429	--	--	429	--
Florence	(100)	South Carolina Industries, Inc.	600	600	--	--	--
Charleston	(101)	Westvaco Corp.	1,950	1,950	--	--	--
Total			6,699	5,140	650	909	--
TENNESSEE							
Calhoun	(102)	Bowaters Southern Paper Corp.	1,625	500	925	200	--
Memphis	(103)	The Celotex Corp.	60	--	60	--	--
Paris	(104)	The Celotex Corp.	300	--	--	300	--
New Johnsonville	(105)	Inland Container Corp.	450	--	--	450	--
Harriman	(106)	The Mead Corp.	190	--	--	190	--
Kingsport	(107)	Mead Papers	300	--	--	--	300
Knoxville	(108)	Southern Extract Co.	140	--	--	140	--
Counce	(109)	Tennessee River Pulp and Paper Co.	775	775	--	--	--
Total			3,840	1,275	985	1,280	300
TEXAS							
Pasadena	(110)	Champion International	930	850	80	--	--
Houston	(111)	The Celotex Corp.	25	--	25	--	--
Evadale	(112)	EasTex, Inc.	1,200	1,200	--	--	--
Dallas	(113)	GAF Corp.	50	--	50	--	--
Texarkana	(114)	International Paper Co.	575	575	--	--	--
Orange	(115)	Owens-Illinois, Forest Products Div.	1,000	1,000	--	--	--
Lufkin	(116)	Southland Paper Mills, Inc.	1,250	400	850	--	--
Sheldon	(117)	Southland Paper Mills, Inc.	860	500	360	--	--
Diboll	(118)	Temple Industries, Fiber Products Div.	620	--	--	620	--
Total			6,510	4,525	1,365	620	--

Table 19.--Mills using southern pulpwood in 1973, by process and capacity (Continued)

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours ^{2/}				
			All processes	Sulfate	Groundwood: and other mechanical	Semi- chemical	Soda and sulfite
			Tons				
VIRGINIA			-	-	-	-	-
West Point	(119)	The Chesapeake Corp. of Virginia	1,150	1,150	--	--	--
Hopewell	(120)	Continental Can Co., Inc.	1,100	900	--	200	--
Doswell	(121)	Evans Products Co.	300	--	300	--	--
Big Island	(122)	Owens-Illinois, Forest Products Div.	500	--	--	500	--
Jarratt	(123)	Southern Johns-Manville Products Corp.	200	--	200	--	--
Franklin	(124)	Union Camp Corp.	1,750	1,750	--	--	--
Danville	(125)	United States Gypsum Co.	225	--	225	--	--
Covington	(126)	Westvaco Corp.	1,304	1,144	--	160	--
Total			6,529	4,944	725	860	--
All States			95,816	76,502	11,510	7,124	675

^{1/} Corresponds to numbers at locations on mill capacity map, page 17.^{2/} Southern Pulp and Paper Manufacturer, vol. 36, No. 10 (Oct. 1, 1973); and other sources.

Table 20.--Pulpmills under construction in the South

Location	Map code ^{1/}	Company	Pulping capacity, 24 hours
			Tons
ALABAMA			
Stevenson	(127)	Mead Paperboard	650
LOUISIANA			
Compti	(128)	Western Kraft Corp.	300
SOUTH CAROLINA			
Marion	(129)	The Celotex Corp.	360
VIRGINIA			
Riverville	(130)	Virginia Fiber	500

^{1/} Corresponds to numbers at locations on mill capacity map, page 17.



Bellamy, Thomas R.

1974. Southern pulpwood production, 1973. Southeast. For. Exp. Stn., USDA For. Serv. Resour. Bull. SE-29, 22 p.

Southern pulpwood production in 1973 increased 6 percent to over 47.1 million cords--over 66 percent of the Nation's total. Plant byproducts used for pulping made the largest volume gain in history and now account for 27 percent of the total pulpwood production. Southern pulpwood was processed at 126 mills, of which 111 are in the South. Pulping capacity in the 12 Southern States rose 5 percent to 92,255 tons per day.



The Forest Service, U. S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

